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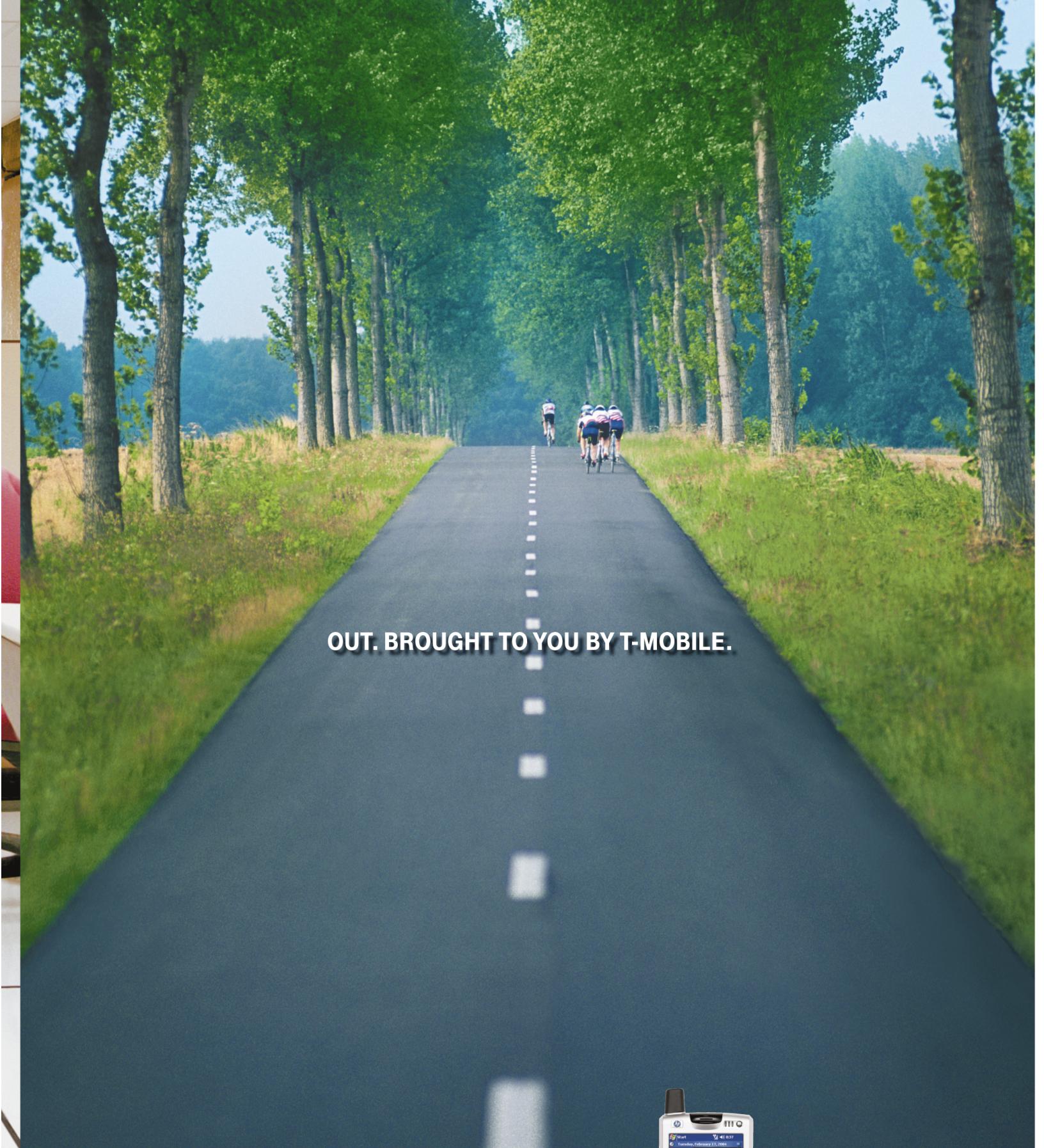
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imitating.



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The World's First 10-channel A/V Receiver With Fully Configurable 4-zone Capabilities

A Breakthrough In Multi-source, Multi-zone Flexibility

For the home entertainment enthusiast and custom installer alike, Denon's new AVR-5805 delivers unprecedented four-zone home entertainment integration and control — all from a single component. With 10 configurable and discrete amplifiers, 16-channels of audio output, and the world's first-ever ability to drive two fully independent 5.1 systems, the AVR-5805 will also route audio and video signals from up to four independent sources and distribute them to up to four separate zones throughout the home. Its advanced capabilities even allow discrete power, source selection and volume control of each zone. And flexibility is just the beginning. Read on.

Masterful Technologies And A "Sweet Spot" For Every Listener

Behind the AVR-5805's newly designed, easy-to-read front panel display is a profusion of powerful technologies. An Equal Power amplifier section delivers a massive 170 watts of high-current power into each of its ten channels, processing for every popular 7.1-, 6.1- and 5.1-channel surround sound format — from Dolby (including Pro Logic IIx) and dts, to THX Ultra2 and THX Surround EX. The AVR-5805 also introduces the latest in Auto Setup Calibration and Equalization with the Audyssey MultEQ_{XT} system, tailoring sound not only to the listening environment but also to the audience. This advanced technology analyzes and calibrates six critical settings including variable crossover point detection. It also determines the correct frequency response for up to six separate listener positions and then averages all six. The result? Literally a "sweet spot" for every listener in the room.



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The AVR-5805 offers a full complement of advanced processing capabilities like HDMI/DVI digital video selection, video up-scaling (including Faroudja DCDi technology for analog sources) and the world's first dual, independent video conversion for unmatched simplicity and the highest picture quality from all your video gear. For even greater A/V performance, it employs the most advanced Texas Instruments' and Analog Devices' 32-bit DSP processors, Burr-Brown 24-bit/192kHz audio DACs, as well as Denon's newly improved DDSC-D (Dynamic Discrete Surround Decoder-Digital). And to top it off, exclusive Advanced AL24 Processing Plus circuitry maximizes all source signals so that the high-resolution DA converters work at peak capacity.

More Connection Options Than Any Receiver In The Industry

In addition to an extensive complement of digital and analog A/V connections, the AVR-5805 includes a full array of "custom installation" features: assignable high amperage DC trigger outputs, dual RS-232C ports to facilitate integrated system and PC connectivity, and a built-in Ethernet port that adds more system control as well as future updates and upgrades. In-demand connection options include 6 high-bandwidth (100 MHz,) HDTV-compatible component video inputs, HD switching for 2 zones and much more. Finally, the latest version of Denon Link 3 and dual IEEE-1394 inputs allow for reception of high-resolution, multi-channel digital audio data directly from compatibly equipped DVD players. It all adds up to total flexibility and the ultimate level of sonic performance. Denon does it again.

DENON
The First Name in Digital Audio

lifestyle close-up

Wireless Phones

If you're old enough to remember what it was like to hunt for an open pay phone (or wait in line for one), dig for change, and hope you had enough to complete your call, you know why cell phones got so popular so fast. But they're more than just emergency lifelines; thanks to built-in cameras and email and text-messaging capabilities, cell phones let us stay connected to loved ones and friends on the go like no other electronic gadget.

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Open

There's always something new happening in the world of consumer electronics. That's why the Open section packs the latest electronics news and trends into the first few pages of *CE Lifestyles*, along with quick looks at new and exciting products and some ultra-cool accessories to go with them.

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A/V Club

Some of our favorite electronic gadgets are the ones that provide the sounds and pictures that move and entertain us. Whether you're into elaborate home theater setups or just want help using the latest TV and stereo equipment, A/V Club can help.

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Digital Studio

Digital cameras and camcorders are changing the way we record the moments of our lives, from quick snapshots of favorite vacation spots to priceless video clips of first steps and other important milestones. Get to know that new digicam or camcorder with help from Digital Studio so you don't miss a shot.

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CE @Home

It's sometimes hard to remember what life was like before cell phones, PDAs, digital music players, and assorted other digital goodies came along. Now we're more connected, organized, and entertained than ever before, but we also have more batteries to charge, too—and more buttons and menus to keep track of.

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how-tos

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CE Lite

Sometimes, it's all about fun. When it's time to find the perfect escape or if you're in search of great gift ideas, come on in and see what's new in digital entertainment. Then stop by Retroscope for a look at how your favorite electronics products have changed over the years.

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Editor's Note

Three weeks ago, my husband and I bought our first house. We were lucky enough to build and, thus, customize it to an extent, but anyone who has made a similarly large purchase before (car, cabin, boat, whatever) knows that spending money doesn't stop when you sign on the line. Some extras you want are frivolous, yes, but some of them are true necessities.

And then there's that ambiguous category of things you know will make your life more efficient and enjoyable but aren't conventionally a requirement of your household. These things merely contribute to good living, and living well isn't a necessity, is it?

I think it is. Good living is half emotional state and half attributed to the things surrounding you that make your home, your car, your *everything* a pleasure to experience. Consumer electronics belong in this latter category. Here at *CE Lifestyles*, we make sure each issue is a guide that shows how to live well by incorporating these devices into our everyday lives.

For example, in this issue, we offer you tips on how to create the perfect DVD from your digital video (page 72) and how to use feng shui to harmonize your devices with your home (page 42). My favorite article this month is on page 62, where we evaluate the value and versatility of store photo kiosks. I hope you find these and our other articles interesting and pertinent to a comfortable and efficient lifestyle.

And I welcome and encourage your feedback. Don't hesitate to email me with suggestions for what you'd like to read about in future issues, as well as your impressions of the present one. Look for some of your ideas in the next few issues. We're working especially hard to develop a publication that fits your lifestyle needs.

Live well, friends.

Katie Sommer

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Samsung & Lexar Unveil Two New Flash Memory Technologies

The flash memory cards we use in digital cameras, music players, and other gadgets are extremely rugged because they use no moving parts and are the storage method of choice for digital cameras. There are more than a dozen standards on the market, running at various speeds and available in various capacities, and as if that wasn't enough to keep tabs on, Samsung and Lexar are bringing two new contenders to market.

Samsung's MMCmicro chips are the smaller of the two new technologies, measuring only 0.5 x 0.47 x 0.039 inches, which as photos show is just enough to cover a computer keyboard key. MMCmicro is designed for use in cell phones, where their 32MB, 64MB, or 128MB storage capacities should come in handy. To put those numbers in perspective, one minute of high-quality compressed audio (think MP3 files) requires about 1MB of storage, while digital photos with high enough quality to create clear 3- x 5-inch prints usually require less than 1MB per picture.

As the photo shows, Lexar's new USB FlashCard is a little larger than a penny, measuring 1.25 x 0.47 x 0.177 inches. The larger size has a key benefit in that it lets the device use the same USB interface that is ubiquitous in today's computers. Lexar is hoping the interface will quickly catch and become a standard storage format for a variety of products. The little devices come in a variety of storage capacities ranging from 16MB to 1GB (1,000MB).



ZigBee Aims To Make Homes Wireless

You've heard about Wi-Fi and Bluetooth wireless technologies, and now you may start to see products using ZigBee wireless technology hit the shelves. The ZigBee Alliance ratified the first ZigBee specification in December 2004, paving the way for a slew of ZigBee-ready devices.

ZigBee isn't designed to transmit a large amount of data over long distances. Instead, it's intended for use with home automation and monitoring, where it provides a wireless alternative that is inexpensive to implement and operate. ZigBee devices will work much like today's home automation devices, letting users control everything from lighting to security, but its main advantage is that you can install and expand it without adding messy and expensive wires.

Because the technology lets you monitor data, you can also use ZigBee devices to track water or gas use around the house. The low power requirements let you operate wireless devices for several months to several years on a set of batteries. Airbee Wireless (www.airbeewireless.com) already has demonstrated a thermostat using the technology, and many more ZigBee-ready products should roll out this year.

... you can install
and expand it
without adding
messy and
expensive wires.

Cordless? Cellular? Both please.



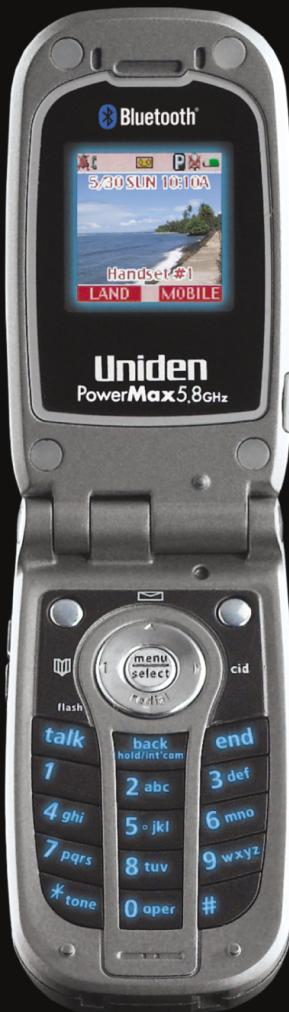
THE BLUETOOTH ENABLED CORDLESS

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also features slim styling and all the features you love, like a full-color LCD display, recordable ring tones,



UP TO 10 HANDSETS, ONE PHONE JACK

downloadable background pictures, handset-to-handset text messaging and an optional wireless Bluetooth headset. All models also come standard with up to 10 handset capability from a single base unit, advanced phonebook features, caller ID, handset speakerphone and a whole lot more. This advanced cordless is even backward compatible with other Uniden Digital 5.8 GHz expandable phones. Now you can get the best of both worlds.

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HD DVD & Blu-ray Disc Showdown Continues

You may be too young to remember the days of VHS vs. Betamax, but you'll likely get a chance to experience a vicious format war of your own soon. With HDTVs flying off of store shelves, studios and manufacturers are looking for ways to deliver HD DVDs to consumers, and the battle between the competing HD DVD and Blu-ray Disc formats is heating up.

The HD DVD format, championed by Toshiba and NEC, recently gained some clout with announcements from Universal, Paramount, New Line Cinema, and Warner Brothers backing the new technology. Meanwhile, Disney recently announced that it will support the Blu-ray Disc format, but nonexclusively, opening the potential for the company to release movies in both formats. Disney joins MGM and Sony Pictures in supporting Blu-ray Disc, which is a high-definition DVD format pioneered by Sony.



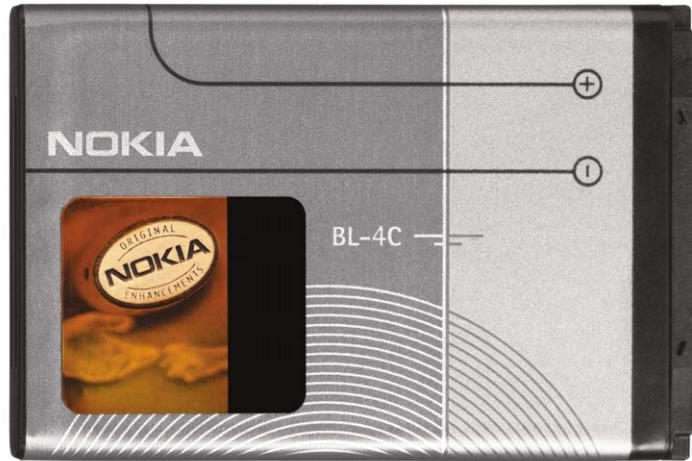
Technically, Blu-ray Disc is superior to HD DVD, but that fact may be moot if other major studios decide to back the HD DVD standard. Today's Blu-ray discs store a minimum of 27GB of data per side, but Blu-ray discs with multiple layers per side store much more than that, ranging from 50GB in a two-layer format to a potential 200GB in eight-layer discs that are currently in development. Compare those figures to HD DVD, which stores 15GB of data per layer, or standard DVDs sold today, which store only 4.7GB per layer. The extra capacity lets studios store more minutes of high-definition content per disc and leaves room for special features, multiple soundtracks, and other extras. Perhaps most importantly, more capacity equals better video quality in the world of digital video, giving Blu-ray Disc the potential to take better advantage of high-definition television sets than HD DVD can.

Many studios and manufacturers are reluctant to commit to the Blu-ray Disc standard for one reason: cost. HD DVDs use much of the same technology as today's DVDs, meaning factory lines require minimal changes compared to the complete retooling that Blu-ray Disc production requires. The only thing that is certain about high-definition DVD right now is that consumers should take a wait-and-see approach. After all, Betamax was technically superior to VHS, and we all know what happened there.

Nokia Moves To Stamp Out Fake Batteries

Some counterfeit cell phone batteries have exploded, posing a threat to a consumer's health and a company's bottom line. Nokia recently unveiled a program to help its customers tell a legitimate battery from a potentially dangerous knockoff. All new Nokia batteries have a holographic label that shows multiple images depending on the viewing angle, which will make it tougher for counterfeiters to copy. The label has a scratch-off area containing a 20-digit authentication code, and users can enter the code online or use their phone's SMS (Short Message Service) text-messaging feature to verify that the code is legitimate. Nokia claims the batteries that exploded in its phones were a result of overheating in counterfeit or cheap third-party batteries.

Nokia's not the only company addressing this problem. Exploding batteries in early 2004 prompted NEC Electronics to create its CIPHERUNICORN-S technology. A cell phone, digital camera, or any other device using CIPHERUNICORN-S senses whether a battery is a legitimate NEC Electronics product. The devices reject counterfeit or third-party batteries, which won't have a chance to overheat and explode.



market place

Windows CE Dominates PDA Market

A November 2004 report from Gartner shows that palmOne was the overall PDA sales leader in the third quarter of 2004, even though Palm OS devices represented slightly less than 30% of the overall PDA market in the same quarter. Palm OS market share in the third quarter of 2004 was 46.9%, so the most current figures represent a sharp decline, which Gartner attributes to the abundance of Windows CE device vendors and palmOne shifting its resources toward smartphones, such as the Treo series.

Preliminary Worldwide PDA Shipment Estimates By Operating System For 3Q04 (Units)

| Company | 3Q04 Shipments | 3Q04 Market Share (%) | 3Q03 Shipments | 3Q03 Market Share (%) | Growth (%) |
|--------------------|----------------|-----------------------|----------------|-----------------------|------------|
| Windows CE | 1,375,866 | 48.1 | 1,037,874 | 41.2 | 32.6 |
| Palm OS | 850,821 | 29.8 | 1,181,202 | 46.9 | -28.0 |
| Research In Motion | 565,000 | 19.8 | 123,775 | 4.9 | 356.5 |
| Linux | 24,500 | 0.9 | 48,550 | 1.9 | -49.5 |
| Others | 42,620 | 1.5 | 125,745 | 5.0 | -66.1 |
| Total | 2,858,807 | 100.0 | 2,517,146 | 100.0 | 13.6 |

NOTE: Totals do not include smartphones, such as the Treo 600 or BlackBerry 7100, but include wireless PDAs such as the iPAQ 6315.

Source: Gartner Dataquest (November 2004)

Preliminary Worldwide PDA Vendor Shipment Estimates for 3Q04 (Units)

| Company | 3Q04 Shipments | 3Q04 Market Share (%) | 3Q03 Shipments | 3Q03 Market Share (%) | Growth (%) |
|---------------------|------------------|-----------------------|------------------|-----------------------|-------------|
| PalmOne | 748,950 | 26.2 | 863,993 | 34.3 | -13.3 |
| HP | 692,113 | 24.2 | 578,500 | 23.0 | 19.6 |
| Research In Motion | 565,000 | 19.8 | 123,775 | 4.9 | 356.5 |
| Dell | 185,300 | 6.5 | 134,813 | 5.4 | 37.4 |
| Symbol Technologies | 63,521 | 2.2 | 72,690 | 2.9 | -12.6 |
| Others | 603,923 | 21.1 | 743,375 | 29.5 | -18.8 |
| Total | 2,858,807 | 100.0 | 2,517,146 | 100.0 | 13.6 |

NOTE: Totals do not include smartphones, such as the Treo 600 or BlackBerry 7100, but include wireless PDAs such as the iPAQ 6315.

Source: Gartner Dataquest (November 2004)

tidbits

Digital satellite providers will generate \$70 billion in revenue by 2008.

Source: In-Stat/MDR

Apple continued to dominate the MP3 player market in October 2004, raking in more than 61% of the \$71,422,140 in total sales.

Source: NPD Techworld

Total Wi-Fi shipments in 2004 are expected to exceed total 2003 shipments by 24%.

Source: In-Stat/MDR

Toshiba, supplier of hard drives for Apple's iPod, recently created an 80GB version of the drive found in the popular MP3 players.

Source: Toshiba

6.97 million digital TVs are expected to sell in 2004, rising to 10.77 million in 2005, 16.77 million in 2006, 23.25 million in 2007, and 27.05 million in 2008.

Source: Consumer Electronics Association

A recent report indicates that broadband speed requirements in U.S. homes will increase from less than 3Mbps (megabits per second) today to between 57 and 84Mbps by 2009.

Source: JupiterResearch

Sprint and Nextel merged to create Sprint Nextel in December 2004, creating a company with approximately \$70 billion in assets. The new company will have almost 40 million subscribers.

Source: Sprint

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Spring is on
the horizon,
which
means it's
time to
shake those
winter
shackles
and play.

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no end of
enjoyment,
at prices
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spoil all
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open



Canon SELPHY DS700

\$199.99

www.usa.canon.com

Forget those little photo kiosk screens. How about using your television to sort and print digital pictures? Canon's SELPHY displays images from CompactFlash, Microdrive, Smart Media, Memory Stick, and SD/MMC (Secure Digital/Multi/Media Card) cards on your television. Select photos and quantities with the remote control, and the SELPHY creates 4 x 6-inch prints in about 85 seconds. Camera phone buffs take heart—the infrared port even lets you print from your phone.



Nikon Coolpix 8800

\$999.95

www.nikondigitalusa.com

Photo buffs will find plenty to enjoy with this 8-megapixel digital camera. Its 10X optical zoom stretches the shooting field and Nikon's Vibration Reduction system helps keep images sharp, even in low light or extreme close-ups.

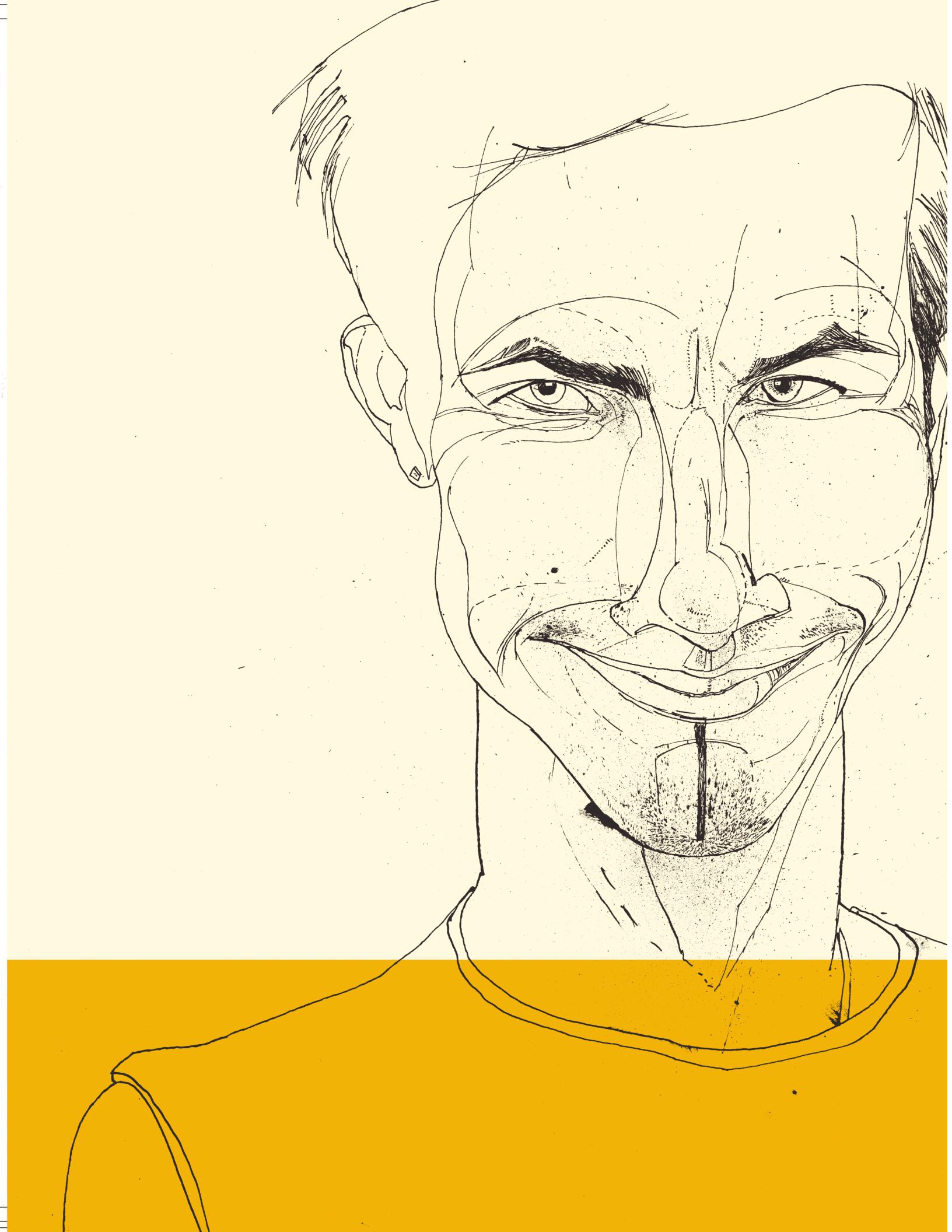
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Olevia LT32HV

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www.syntaxgroups.com

Flatscreen prices are getting lower and lower. Olevia's latest 32-inch LCD offers high-definition resolution for sharper images, high contrast for blacker blacks and brighter whites, and a 176-degree viewing angle for a good picture from anywhere in the room. The Olevia includes HD (digital plus analog) and standard inputs in both the 32-inch and 37-inch (\$2,999) models.



Sony DVDirect (VRDVC10)

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www.sonystyle.com

Sony's newest DVD burner doesn't even need a computer to perform. The DVDirect's standalone mode lets you connect a camcorder, VCR, or DVR and record directly to DVD, in real-time. Connected to a PC, it acts as a regular DVD drive and recorder, creating full discs in about six minutes.

Nintendo DS

\$149.99

www.nintendo.com

Nintendo's latest portable game system, the DS, provides two ways to play by including dual screens. Share the same game from different perspectives or view two different screens of the same game. The DS is compatible with single-player mode of Game Boy Advance SP games, and PictoChat software shares drawings and text messages between players.





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Your Next TV

Make Sense Of The New TV Technologies



nce upon a time, a trip to the store to buy a new television was such a simple matter: How big of a set were you looking for? Did it match your décor? This straightforward hunt was possible because every set in the showroom was built around the same technology: the CRT (cathode-ray tube).

But those days are gone. With the **analog** world steadily giving way to **digital** (see the "TV Talk" sidebar for definitions of terms in bold print), several new TV technologies have emerged to rival the dependable CRT. Consequently, and sometimes confusingly, shopping for a TV now involves so many acronyms that it's like taking a tumble into a bowl of alphabet soup.

To clear up the picture, we'll provide a rundown of the various types of televisions currently available. We won't weigh things down with extensive technical descriptions of how they work; we'll tell you just enough to give you the general idea. We'll also discuss the strengths, weaknesses, and relative qualities that may interest you as a buyer.

CRT: In Praise Of Tradition

Before moving to the new TVs, let's clear up one matter. You may be getting the idea that the CRT is on its way out. True, it will inevitably join the telegraph and other outdated inventions on history's scrap heap, but that day is still years away.

Strengths: CRT TVs are still the most common type sold, for very practical reasons. The CRT is a mature technology, reliable, and the best bargain out there. A good tube set should last upward of a decade with almost no noticeable loss of picture quality.

And, speaking of quality, it may surprise you to hear that newer technologies have yet to surpass good CRTs. The tube is still tops when it comes to **black level**: some newer technologies render black as more of a dark gray. CRTs also provide an extremely wide **viewing angle**—around 170 degrees with the newer flat-screen tubes that improve on the traditional curved glass front; these flat-screen tubes also help reduce glare. Most other technologies still fall short of this.

And while the CRT originated as an analog technology, you can also find tubes in sets capable of handling digital broadcast formats such as HDTV. Although most CRTs come in the standard 4:3 **aspect ratio**, 16:9 models are also available.

Weaknesses: Size limitations. The larger the screen, the greater the set's depth and weight. And that's a problem now that **big-screen TVs** are becoming ever more popular. For manufacturers, it's impractical to build CRT sets larger than 40 inches, whose weight can exceed a back-breaking 300 pounds. The TV's **phosphor** coating on the screen can also cause **burn-in** on CRTs.

Flat-Panel TVs

Unlike flat-screen tubes, flat-panel TVs are at most a few inches thick. They're the ultimate in sleek design, and you can even hang them on the wall to save space. Flat-panel TVs come in two forms.

PDP (plasma display panel). A plasma TV creates images using a system of gas-filled red, green, and blue pixels (picture elements) that glow when activated by an electrical charge.

Strengths: Because plasma TV screens use a phosphor coating like a traditional tube, their picture quality is, among all the newer technologies, most

like a CRT's. They have comparably wide viewing angles—a plus if you enjoy group viewing—and tend to be very bright, with high **contrast** and **color saturation**. And they can reach sizes far beyond the practical limits of CRTs, with screens as large as 71 inches and beyond.

Weaknesses: Plasma TVs are among the most expensive out there, with retail prices for smaller sets starting under \$2,000 and climbing far higher. Assuming you don't balk at the price tag, the biggest potential drawback for plasma TVs is their susceptibility to burn-in on their screen; the risk is even higher than on CRTs. Some newer plasma models incorporate features that attempt to reduce this risk but have not eliminated it.

Longevity: Plasma models are good for around 30,000 hours of use before brightness falls to half strength. (Some manufacturers claim more or less than 30,000 hours. Check with the manufacturers for their estimates when shopping for a plasma TV.)

LCD (liquid-crystal display). LCDs were familiar on laptop computers, cell phones, and other devices long before they came into use as TVs. Each pixel in an LCD is filled with a liquid-crystal solution that is manipulated by a small electrical current and made visible by a fluorescent backlight and a color filter.

Strengths: LCDs are thinner and lighter than plasma screens of comparable size and are more rugged overall, so they can be an even better option for wall hanging. They use less energy and offer a bright picture with no risk of burn-in.

What might have been a drawback just a few months ago is now disappearing. Until late last year, LCDs came no larger than 40 inches, giving plasma the edge in huge flat panels. However, Samsung and Sharp recently broke that barrier by introducing, respectively, 46- and 45-inch LCD TVs. Models up to 65 inches are in the prototype stage.

Weaknesses: Like plasma sets, LCDs can be frightfully expensive—Samsung's 46-inch LT-P468W lists for \$9,999—sometimes even more



Venerable tube technology can handle widescreen HDTV clarity just fine, as this 30-inch Samsung TX-P3064W proves.



Big, beautiful, and suitable for hanging: Panasonic's TH-65XVS30U ONYX XVS Series 65-inch plasma TV.



Thanks in part to Sharp's 45-inch LC-45GX6U, LCD flat-panel TVs broke the 40-inch barrier in late 2004.

expensive than plasmas on a per-square-inch basis. (Fortunately, analysts expect LCD prices to drop by 30% by the end of 2005, with substantial price reductions for plasma sets, too.) An LCD's viewing angle can be limited, particularly when watching from points above and below the screen rather than off to the side. However, some recent models have achieved viewing angles comparable with CRTs. LCDs have lagged behind plasma a bit in black level and have a comparatively sluggish response time to incoming image data, so fast-moving pictures may not look crisp.

Longevity: LCDs boast a considerably longer lifespan than PDPs: about 50,000 hours of use, after which you can replace the backlight and continue using the LCD.

Rear-Projection TVs

If you have an urge for a jumbo screen but lack a flat-panel budget, an RPTV (rear-projection TV) may satisfy your eyes and finances alike. All four types of RPTVs operate on the same basic principle: Internal components project an image onto a mirror positioned on the back of the unit, which reflects the enlarged image onto the screen.

(The technologies below the CRT entry are also used in front-projector TVs, which aren't self-contained sets but small units that beam an image onto a pull-down screen or a white wall.)

CRT. Yes, cathode-ray tubes can serve as projectors, too. This type of RPTV uses three small CRTs to separately project the red, green, and blue parts of a video signal, which combine on the screen to form a unified image.

Strengths: This is the most economical of all the big-screen TV types, with prices starting below \$1,000. They're widely manufactured, with numerous models to choose from, so you can afford to be picky. And because they use tubes, they also offer unsurpassed black level performance in their class.

Weaknesses: These are the heaviest and bulkiest of the big-screen models. They also require periodic adjustment to realign the tubes; otherwise, the picture is prone to losing sharpness and turning fuzzy. And, again, because the tubes have a phosphor coating, burn-in is possible. These TVs have a relatively narrow viewing angle and aren't as bright as the three RPTV models below, so they need a dimmer room to perform their best.

Longevity: Because of technological differences, it isn't feasible to give projection TVs the same kind of hours-of-use rating as we can give flat-panels. With CRT RPTVs, tube life should be comparable to that of direct-view CRTs. However, if one tube goes out, you'll need to replace all three; otherwise, the new tube could be more powerful than the others and tint the picture too much toward its color.

LCD. This (and the following two types of RPTVs) falls in a subcategory known as **microdisplays**. Similar to the CRT RPTV, this type separately processes red, green, and blue but uses three small LCD panels, instead. A prism combines the three images and then magnifies and reflects the master image onto the screen.

Strengths: Like their flat-panel cousins, LCD RPTVs are very bright, with excellent **color fidelity**. They also share several traits with the two other microdisplay technologies below: Unlike CRT RPTVs, their projector components require no adjustment, so they typically offer a sharper picture. And they have no risk of burn-in. Also, they aren't as deep as CRT RPTVs of comparable screen size. Although not cheap—they start several hundred dollars higher than CRT RPTVs and can run as high as a few thousand—they are at least more economical than flat-panel sets of the same size.

Weaknesses: Just as LCD RPTVs share certain advantages with flat-panel LCDs, they share some of the drawbacks, as well. Black level isn't quite as deep as in the other projection technologies. They also have a narrower viewing angle (about 120 to 130 degrees) than other microdisplays.

Longevity: Microdisplay sets rely on projector bulbs or lamps, and while it's difficult to predict when one will go out, it's hardly a catastrophic failure; they're easy to replace.

DLP (Digital Light Processing). The projector component in these types of RPTVs is known as a light engine. It uses a digital chip in which a microscopically small mirror (over a million of them total) represents each individual pixel. These mirrors reflect a color-filtered light, which is then projected onto the large mirror and reflected onto the screen.



Sometimes size does matter. The 52-inch HD52W55 CRT HDTV and 61-inch HD61LPW163 DLP HDTV, two big-screen projection TVs from RCA, show how much deeper and bulkier CRT-based sets are than LCD and DLP microdisplay sets.



Strengths: DLP TVs provide a bright, high-contrast picture with the richest black level and shadow detail this side of CRTs. Light engines provide the fastest processing among microdisplay technologies, so the crispness of their picture quality and movement is superb. For that reason, DLPs excel in home theater applications. They also have one of the widest viewing angles in their class: around 150 degrees.

Weaknesses: The only significant drawbacks to DLPs are quirks that you may not even notice. Some viewers see a **rainbow effect**, especially when moving their eyes across the screen. Although most viewers don't notice this, DLP manufacturers have nevertheless recently refined the technology to reduce

the likelihood that it will occur. Also, in darkened areas of the picture, some viewers notice a degree of video noise—flashing pixels that remind some of gnat swarms. Because these are such unpredictable responses, it's a good idea to thoroughly test your own visual reactions in-store before buying.

LCoS (Liquid Crystal on Silicon). This is the newest of the new TV types and is a more complex application of LCD technology.

Strengths: LCoS has the potential for extremely high picture resolutions, and the sets can also be the thinnest and lightest of the current projection units. Some viewers have reported excellent contrast and black level, although there have been

detractors, as well. The discrepancy is probably a result of LCoS' erratic performance record as a new technology.

Weaknesses: At this point, the future of LCoS looks shaky. It's a very tricky technology to manufacture and implement, and as of this writing, Philips is the only major manufacturer offering LCoS models. Mitsubishi and Toshiba have already terminated their lines. Intel, makers of the Pentium PC processor, kept LCoS viable throughout most of 2004 by promising that its mass manufacturing capabilities would do for TV prices what they've done for computers; however, late last October, Intel canceled further development after several failures. **CE**

BY BRIAN HODGE

TV Talk: A Mini Glossary

When evaluating TV technologies, it's important to be clear on the meanings of a handful of terms. All definitions are geared toward a home entertainment context.

analog—Technology based on continuously variable physical signals, such as traditional broadcast and cable TV.

aspect ratio—The ratio of a TV screen's width to height measurements. Standard screens have a ratio of 4:3 (four inches of width for every three inches of height). Widescreen formats have a ratio of 16:9.

big-screen TV—Although the threshold can vary depending on the source, this generally

refers to a set with a screen larger than 40 inches.

black level—This refers to the picture's intensity of pure black and other dark colors.

burn-in—The lingering ghost of an image that has stayed on a phosphor-coated screen long enough to become permanently imprinted. This isn't an issue with most programming, in which images keep moving. Instead, the risk of burn-in comes from stationary objects and frameworks such as bottom-screen news scrolls and stock tickers, network logos, and video game status panels.

color fidelity—The accuracy of the color reproduction in an image.

color saturation—The intensity of an image's color.

contrast—The degree of difference between the lightest and darkest parts of an image.

digital—Technology based on binary data represented by just two values (0 and 1); for example, CDs and DVDs.

microdisplay—A subcategory of projection TV technology that uses a small projection source. Because it has a very high density of pixel detail, it can be magnified to a much larger viewing size.

phosphor—A substance that emits light when exposed to electromagnetic radiation.

rainbow effect—Streaks or flashes of color that some people notice on DLP projection TVs, often when tracking their eyes across the screen.

viewing angle—If you imagine a TV facing a 180-degree half circle of viewers, this gives you a visual of a viewing angle of 180 degrees. Within those 180 degrees, viewers can see the picture without a major change in brightness or color appearance.

widescreen TV—This has a more cinematic width to height screen ratio of 16:9 (as opposed to the 4:3 ratio of standard TVs), regardless of its size.

Sharp Aquos LC-32GD6U: how-tos



Sharp Aquos LC-32GD6U

\$3,999.99

www.sharpusa.com

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harp's Aquos LC-32GD6U is a 32-inch LCD HDTV that can output stunning video as long as you know how to properly adjust its myriad settings. This TV has setup menus that provide more configuration options than almost any TV we've ever tested; this guide will help you get the best picture quality from this set.

Basic Setup

Two plastic panels on the back of the set hide a forest of connection jacks. You should always opt for the best connection your video hardware supports when connecting devices to this television. The all-digital HDMI (HD Multimedia Interface) and DVI (Digital Visual Interface) ports provide the best picture quality, followed closely by the analog

component video jacks. Use S-Video if none of those options is supported by your video hardware and use the yellow composite video jack only as a last resort.

To hook up your audio, use the white jacks for the left audio channel and the red jacks for the right audio channel. Make sure you keep the red component video jack separate from the red stereo audio jack, as they look alike. Just pay attention to the labels next to each jack, and you'll have audio connected from your devices in no time.

The audio controls are basic, letting users select Treble (high-frequency) and Bass (low-frequency) levels, along with right and left Balance levels. The only advanced option is the Dolby Virtual setting, which can be turned on and off but not fine-tuned. Dolby Virtual simulates surround sound using only two speakers and can dramatically expand the television's sound field. The downside is that dialogue tends

to lose a little clarity, but movies generally sound better if you enable this option.

Another nice feature is the Center Channel Input jack. This is for users with surround-sound A/V receiver equipment that supports a front-center speaker. By connecting the A/V receiver's center channel output to the Aquos' Center Channel Input jack, you can use the television as a center speaker instead of routing audio through an external center speaker. The quality won't be quite as good as the audio you'd hear from a dedicated center channel speaker, but eliminating the need to mount that speaker plays to the television's good looks.

Video Adjustments

To achieve the most accurate results when adjusting the video settings, it is helpful to use a calibration DVD such as Ovation Software's Avia Guide to Home Theater (\$49.99; www.ovationsw.com).



These discs contain special video test patterns that help users change settings by making precise adjustments instead of eyeballing video playing on a TV channel.

Press the Menu button on the remote control and use the arrow buttons surrounding the Enter button to navigate through the menus. Start with the Picture menu and press Enter to select the OPC entry (Sharp doesn't say what these initials stand for). This setting automatically adjusts the brightness of the video based on light levels detected by a sensor in the TV's frame. If the room is bright, the picture brightens to compensate; when the room is dark, the picture dims to reduce eyestrain. We chose to leave this feature off so we could adjust our set for maximum nighttime viewing quality at the expense of daytime brightness.

The Backlight setting (also in the Picture menu) adjusts the overall brightness of the fluorescent lights installed behind the

LCD panel. We don't recommend adjusting it below the STD (standard) setting. Our hardware's best results had settings between +1 and +4, depending on our connected video equipment.

As in most televisions, the Brightness and Contrast controls in this set control the opposite functions. The Contrast control actually adjusts the brightness, and turning it up too high makes whites too harsh. We found that leaving it at the default setting or turning it up a few notches usually looks best. The Brightness control adjusts the set's contrast, which determines the cutoff point where grays appear to be black. Turning it down too low makes the picture extremely dark, as grays are displayed as black, while turning it up too high makes blacks appear gray. Once again, using the default setting or turning it up slightly gives the best results.

The colors in our test set, especially reds, were oversaturated, glowing instead of

looking natural. This is a common problem in most televisions because they are set to very bright levels at the factory so they can compete with other models sitting on store shelves. Correcting the problem on this television is fairly straightforward. If you want to tone down the saturation for all colors, adjust the Color control down until colors look more natural. If you want everything to look perfect, select the Advanced option instead and press Enter. Select C.M.S.-Saturation, press Enter, and adjust the individual color settings until everything looks just right. With our calibration DVD, settings between -15 and -35 for each color looked best, but we found that reds were still too bold, giving flesh tones a sunburned look and making red parts of the screen stand out too much.

You can correct this on the Advanced menu by selecting C.M.S-Hue, pressing Enter, and adjusting the R (Red) value toward the yellow end of the scale. A



setting of +10 looked best. It also is possible to skew yellows toward the green end of the scale and greens toward the blue end, etc., by selecting the other entries and reading the instructions that appear on the left side of the screen.

Another color-related option you should adjust in the Advanced menu is Color Temp. This sets the overall tone of pure white, ranging from High and Mid-High settings that make whites look bluish to Mid-Low and Low settings that lend whites a reddish tint. The Mid-Low and Low settings tend to make movies and TV programs generally look their best, while the Middle, Mid-High, or High settings make video games look better.

This is a widescreen television, meaning the picture is nearly twice as wide as it is tall. This is great for watching movies, which are mainly shot in widescreen format, but most television programs and VHS tapes are formatted to fill a

standard television in which the picture is only slightly wider than it is tall. The TV's several view modes can accommodate the various formats; if video looks unnaturally squashed or stretched when you watch a program, check the video mode setting.

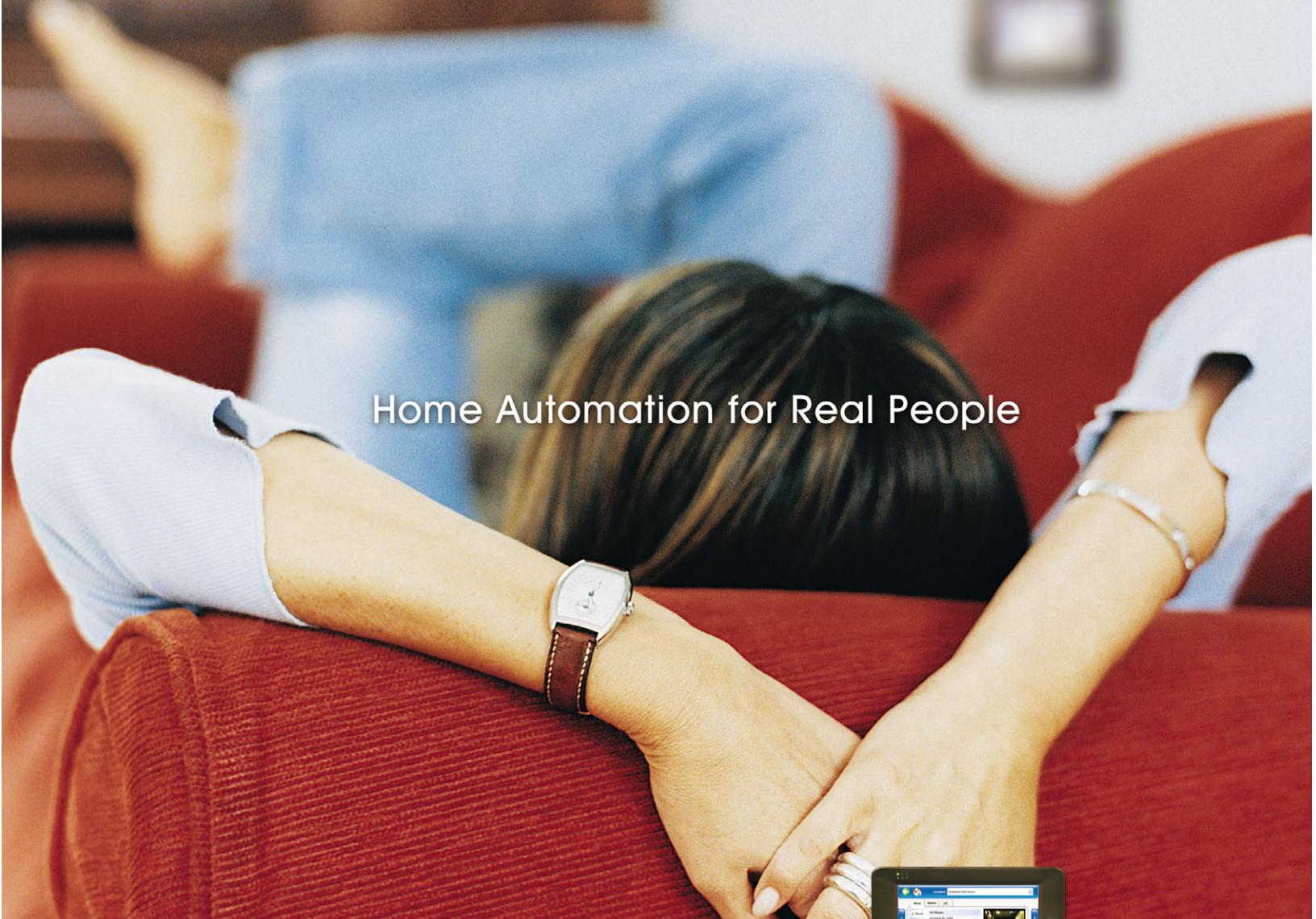
To select a different mode, press the View Mode button and use the cursors to select Side Bar, Smart Stretch, Zoom, or Stretch. Side Bar is the most accurate setting; it places the original image in the center of the screen with no distortion, while leaving black bars (called letterbox bars) on either side of the screen. If you want to fill the entire screen with the smaller image, Zoom does so without introducing picture distortion, but it cuts off portions of the top and the bottom of the screen. This tends to obscure the tops of actor's heads, but you can use the arrow buttons to move the picture up or down as needed. If you want to recenter the picture, press Enter.

Stretch mode displays the entire image on-screen at once, but it distorts the picture. This mode makes the entire image wider, stretching everything horizontally so it fills the screen. A better option is Smart Stretch, which fills the screen by leaving the center of the image intact and stretching out the sides of the image. This works well for newscasts and other programming where most of the action is in the middle of the screen.

Room To Experiment

This television has so many adjustment options that it is easy to make adjustments that you can't remember how to undo. Write down any changes you make and remember that there is a Reset entry on the Picture and Audio menus that resets everything to the factory defaults. It takes a little work to get the most out of this TV, but the results are worth it. 

BY TRACY BAKER



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Pioneer VSX-D814 Receiver: how-tos



Pioneer VSX-D814 Receiver

\$365

www.pioneerelectronics.com

Pioneer's VSX-D814 is an entry-level 6.1-channel surround-sound receiver that lacks some of the setup controls found in the more expensive VSX-

D914. With the latter product, users can connect an included microphone into the MCACC (Multi-Channel Acoustic Calibration System) jack and let the receiver do all the setup work for you. With the VSX-D814, you'll have to make these adjustments manually.

Connect The Speakers

First, connect your speakers to the red and black posts on the back of the receiver. The holes in the middle accommodate banana plug connectors that you can attach to the ends of the wires. When using a 5.1-speaker configuration, attach the rear speakers to the Surround outputs, not the Surround Back outputs. The tricky part about this setup is that

the rear-center speaker attaches to both of the Surround Back outputs. Connect the positive speaker wire to the positive right Surround Back speaker post and connect the negative speaker wire to the negative left Surround Back speaker post.

Make Additional Connections

For top-notch video quality, use the best video connection supported by your video output hardware. Composite video uses the yellow video jacks on the back of the receiver and outputs the worst-quality video. S-Video is a step up in terms of quality, but for the best possible video quality, connect your TV to the receiver using a component cable and the red, green, and blue component inputs.

For audio, the white and red RCA jacks are the worst in terms of quality. Only use these for analog stereo equipment such as turntables, old CD players, or

tape decks, for example. The unit has six RCA jacks designed for use with certain DVD players that output analog 5.1-channel surround sound, so use those if your DVD player doesn't have digital outputs.

The digital optical or digital coaxial outputs offer the best possible sound quality for equipment that can use those types of signals. In testing the sound outputs from the optical and coaxial ports were identical, so use the one that is most convenient based on your other hardware.

Tweak The Settings

For the simplest setup, press the Quick Setup button on the front of the receiver and follow the prompts. For the best sound quality, however, you should go through the full setup procedure.

Grab a tape measure and use it to determine the distance from each speaker to



Use the receiver's remote and display menu to set the size of each speaker.



Although the VSX-D814 is designed for 6.1 sound, you can connect two rear-channel speakers instead of one.

your listening position. Now press the Receiver button on the remote control and use the Right arrow key to navigate through the settings or the Left arrow key to navigate backward through settings you've already adjusted. When the receiver displays a setup entry, press the Down arrow or Up arrow buttons to adjust the setting. We'll walk you through the options in the order they appear as you press the Right arrow key.

First, you should adjust the speaker settings. All entries include F (front), C (center), and S (surround) settings, which are followed by S (small), L (large), or * (those speakers are not attached) modifiers. So, if you have small front speakers, a large center speaker, and no surround speakers, select the FS-CL-S* setting.

Move to the next menu entry, which adjusts the surround-back speakers. Use the same S, L, and * modifiers, and there is an additional SW modifier you should

use if you connected a subwoofer to the surround-back speaker outputs.

The next menu entry contains some important subwoofer settings. Most 5.1-channel surround-sound tracks contain an LFE (Low Frequency Effects) channel that is intended for the subwoofer. To send the LFE channel plus bass to the subwoofer, select Yes. The Plus setting is the same as Yes except it also sends bass signals to any large speakers in your setup, boosting overall bass. To prevent any bass signals from going to the subwoofer (not recommended), select No.

Next up is the crossover frequency setting, which determines the cutoff where signals are sent to the subwoofer instead of to the satellites. If your speakers have recommended crossover settings, use those. If not, the default setting of 100Hz should work well if you have large speakers, while a setting of 200Hz works best if you have small speakers.

Skip to the setting to input the distance each speaker is from your listening position, beginning with the front-left speaker and cycling through the center, front-right, surround-right, surround-back, surround-left, and subwoofer channels. Set this as accurately as possible so the output to each speaker is balanced.

Cycle through to the Component Video Input settings if you use component video connections. Use the arrow buttons to associate a particular device (such as a DVD player) with a particular component video input so the receiver switches to the appropriate video input when you select that device using the remote control. Move to the Digital Input settings and do the same thing for your audio connections. Exit the menu and enjoy the surround sound from your new receiver. 

BY TRACY BAKER

Philips DVP642: how-tos



VD players are practically a dime a dozen anymore, and most have the same familiar features. Progressive scan, component output, MP3 playback? Yawn. So what's to set new DVD models apart? In the case

of Philips' DVP642, it's DivX compatibility. We'll show you how to set up and use this player and talk about the benefits of DivX playback.

The DVP642's back panel contains the standard array of jacks and connectors. Use component video output if possible, S-Video if not, and the yellow composite video jacks as a last resort. Connect the audio output from the DVD player to the A/V receiver's audio input using either a digital optical or coaxial connection. If your receiver

doesn't support digital audio (or if you're pushing the DVD player's sound through the TV), use the red and white analog stereo outputs. Budget a little extra for better connectors—Philips only includes yellow composite video and red and white stereo audio cables with the DVP642. The included Quick Use Guide diagrams your options quickly and clearly.

After you've connected the DVP642 to your TV or A/V receiver, take a few minutes to configure its on-screen menu. Most people never even see this tool, but it's an important way to make sure your player's setup matches your system. First, press System Menu on the remote control and check out the Video Setup page. Set the TV Display aspect ratio to match your display (such as 4:3 or 16:9). Choose your video connection, such as component video or S-Video, under Video Output. Navigate with the remote to the Progressive

option. Expand the menu with the Right arrow and select On or Off, as your display dictates.

Only enable this feature if you have a television capable of displaying progressive-scan images. For normal screens, progressive scan creates no improvement in image quality and can actually degrade the picture. To turn off progressive scan without menu access, just turn on the player, open the disc tray, and press 1 on the remote control. Navigate to the Smart Picture menu, expand the submenu, and either choose a preset configuration or select Personal to customize the settings. Next, adjust Brightness, Contrast, Hue, and Saturation with the remote's arrow buttons to optimize the display on your television.

The DVP642 couldn't be easier to use. Just insert a disc and play. The DVP642 is compatible with DVD-R/RW and



Philips DVP642
\$79.99
www.philips.com

DVD+R/RW formats, as well as commercial CDs and CD-R/RW formats. The DVP642 supports MP3 playback, as well.

Dig Into DivX

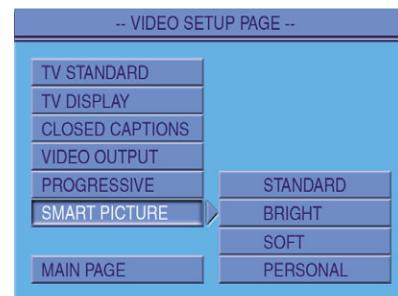
The most interesting thing about the DVP642 has nothing to do with DVDs. Its support for DivX enables you to store and play full-length movies (and more) on regular CDs. At press time, the DVP642 was one of just eight models to support the new technology. DivX is a compression and display technology that retains image quality while creating tiny file sizes. Based on the MPEG-4 (Moving Picture Experts Group-4) standard, DivX can reduce MPEG-2 videos (the standard for commercial DVDs) to 10% of their original size. Even more impressively, DivX can reduce VHS recordings by as much as 99%.

To use DivX, rip, download, or convert video from any source (including home

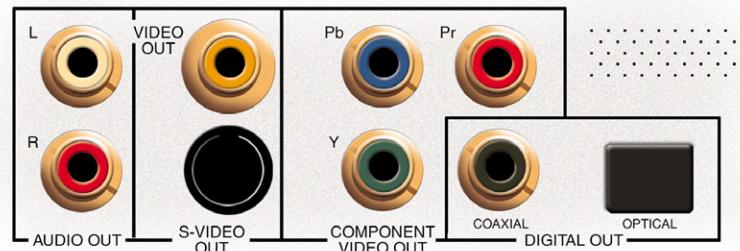
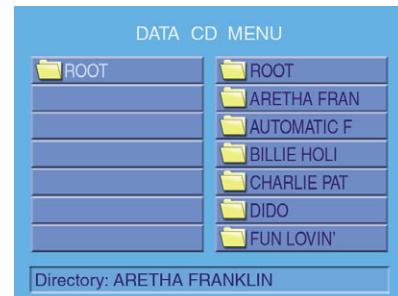
video, Internet sites, or VHS archives). If the video is in another format, you'll need to convert to DivX using software tools available for download from www.divx.com. Store the DivX files on your PC's hard drive and burn them to a regular CD-R/RW disc. We found a handful of (legal) movies and short films at www.divx.com. More rental and download sites are popping up every day, and, of course, you can always convert your own VHS and home video archive to DivX. To play the files, you need either special DivX decoder software or a device with built-in support for the standard. That's where the DVP642 comes in.

To begin DivX playback, just turn on the player and insert a disc containing DivX

Take the time to configure the DVP642's video settings to match your display.



Pop in a DivX, MP3, or JPEG (Joint Photographic Experts Group) data disc and navigate your folders and files with the remote.



The DVP642's back panel offers all the standard connectors you'd expect to find on a new DVD player.

files. The DVP642 will load its Data CD menu. Use the remote to navigate to a folder and file and press OK. You can also preview each item on the disc. Stop playback and press the Preview button on the remote control. Scroll through the thumbnails and select the video you want to watch.

As DVD technology proliferates, manufacturers are scrambling to find new ways to entice you to use their models. Philips' DVP642, with its very reasonable price tag, offers customizable controls, plenty of playback options, and built-in support for a promising new technology. 

BY GREGORY ANDERSON

LG LST-3510A HDTV Receiver/DVD Player: how-tos



LG LST-3510A HDTV Receiver/DVD Player
\$699
us.lge.com

S

ure, you can buy a separate DVD player for movies, a video scalar to improve the quality of your video, an HDTV tuner to receive HDTV broadcasts, and a digital signal switcher to manage all those connections. But why? LG's LST-3510A rolls all those functions into one. You'll want to take advantage of each to get your money's worth, and we'll show you how.

The LST-3510A's primary function is as an HDTV tuner. You need a separate tuner to receive HD broadcasts unless your display has a built-in ATSC (Advanced Television System Committee) tuner that receives HD signals. The LST-3510A receives signals through an over-the-air antenna or digital cable connection. LG includes a built-in cable

card to receive unscrambled digital and HD cable channels.

The LST-3510A provides better video outputs than most other tuners. The DVI (Digital Visual Interface) output keeps signals digital, retaining better picture quality than analog component (and other) video connections. Most digital TVs have just one DVI input, though. The LST-3510A sends both DVD and TV signals through one DVI connection, though, so you won't have to choose between them.

Setup & Installation

LG made this tuner's setup simple. Connect the LST-3510A to your TV and A/V receiver with a component, composite, or DVI cable, and also a digital audio cable. Then connect the TV antenna or cable TV cord to the LST-3510A's ANT IN jack. Next, press the Display Format button on the LST-3510A's front panel and press the Forward or Back arrows on the panel to

select the video signal type, which depends on the cables you use to connect the receiver to the TV (such as component, RGB, or DVI). Press Select and use the arrows to select a display resolution (1080i, 720p, 480p, 480i). The numbers refer to lines of resolution, and "i" or "p" refers to an interlaced or progressive signal in which the TV displays either half (interlaced) or all (progressive) the lines of the TV image every 1/30 of a second. Progressive is the better of the two.

Now, customize other settings. Turn on both the receiver and your TV. Press the Menu/Setup button on the LG remote control. Use the Up and Down arrows to highlight the Setup menu and press Select to enter the submenu. Start by checking your receiver's signal strength. Press the Down arrow to highlight the DTV Signal option and make sure you have reception. Then use the Up arrow to highlight EZ Scan, press Select, highlight your signal source (DTV for over-the-air



The LST-3510A's DVI connection lets you get the highest-quality HDTV images.

antenna or CADTV for cable), and press Select again. The unit will find and index available digital channels. When finished, press Exit to scroll through your lineup.

Press the Menu key again. Press the Down arrow to select the Option submenu, press Select, and highlight the Aspect Ratio option. Select your preferred display format (Normal, Wide, or Zoom, for example). We recommend choosing the Set By Program option, letting the source material dictate which format the receiver uses. Finally, set up the electronic programming guide. Navigate to the Guide option in the main menu. Press Select, highlight the Program Guide option, and press Select once more. Be patient, though; it sometimes takes a few hours to display listings the first time.

Improve DVD Quality

Beyond its TV functions, the LST-3510A shines in its role as a DVD player. First, the

LST-3510A can upconvert, or scale, DVD's 480p signal to either 720p or 1080i. This process uses mathematical formulas to improve picture quality by adding extra lines of resolution. Upconversion can be tricky—poorly done, it can render images worse off than before. But the LST-3510A pulls the trick off well, with sharp clear images all around. Enabling upconversion is simple—just use the Display Format button on the HD receiver's front panel to match the receiver's outgoing resolution to your television's native resolution. Select your video output connection, such as DVI or component, and then the correct resolution. If you don't like the way upconversion looks, reselect Native from the same menu.

Use the Display Format function to switch between display modes and optimize the video resolution for each movie and show (whether in HDTV or standard definition). One nice perk of this model is that standard-definition connections

work simultaneously with HD outputs. In other words, you can watch a program in HD and record it in SD (using two separate outputs from the receiver).

Your home movie experience will also benefit from the LST-3510A's digital DVI video output. Still not standard for consumer-level DVD players (component video is usually as good as it gets), DVI is an all-digital high-quality connector. It means less converting to and from analog (degrading the signal with each conversion) and a better picture at the display. And you'll only have one cable to connect to the TV, rather than three, as is the case with component cables. After connecting the cable (not included) to the LST-3510A's DVI-HDTV Out jack and your television's DVI input, select the DVI output using the receiver's Display Format button, as described above. 

BY GREGORY ANDERSON

tips

Feng Shui & Your A/V

Feng shui is mostly about arranging an area so you can live in harmony with the spiritual world around you; there's no reason you can't include your electronics in the mix.

1

Dump The Big, Honkin' TV

TVs are moving past the big, heavy, cube TV stage and are evolving into larger, sleeker models that are becoming more popular each year. Those older, clunky TVs became the focus of a room, and that's one of feng shui's definite no-no's. You want your TV to flow with the walls, to nestle into a corner, to dominate only when you tell it to. Today's LCD and plasma TVs do the trick nicely, offering a gloriously large viewing surface with a casing flat enough to fit much closer to the wall than ever before. Hang one on your wall, and you'll have a room where the wall itself comes alive whenever you play a DVD.

2

Black Is Beautiful . . . Sometimes

We all know people who have a black TV and black audio components in a room in which nothing else coordinates with black. Feng shui is about energy, and nothing saps a room's harmonizing energy more than intense contrast. Get some silver components instead, complete with a silver stand, and build your room's décor around it. Picture a large silver plasma screen stretching along the wall; a silver DVD and satellite receiver disappearing into the silver shelves of the stand; and silvers, whites, blues, and grays touching up the room elsewhere.

3

Wiry Vegetation

By combining your vision of a harmonious room with your enjoyment for music, you can use plants to create a space where your electronics' wires won't disrupt your feng shui. Select your plants wisely. Thick plants can absorb too much sound, so keep them away from speakers. Spend time checking the sound to compensate for the plants. And go for broad, spreading varieties to cover an area with lots of wires. One of the best things about using plants is that it becomes easy to hide wires without depending on those functional but unattractive wire guides on the baseboards.



4

To Thine Own Shelf Be True

One of the easiest and least expensive ways to achieve unity among your room's features, even in a room crowded with electronics, is to spread the components along a carefully arranged set of shelves, with the shelves selected to match the surrounding walls and furniture. Consider glass shelving (which takes extra care) to give the equipment a floating look (although in this case, we suggest that you dust your components regularly). If you want to hide the entire electronic ensemble, choose a cabinet enclosure that blends into the space where it will stand instead of using shelves. Don't necessarily get the biggest; get the one that works with the room and tailor your components accordingly.

5

Rearrange Your Speakers

We've all become so used to seeing speakers standing in the corners, jutting out at random locations in the room, or even serving as plant-holders that we don't realize how much less obtrusive they could be if we set them up more efficiently. Why not use some space in your walls to organize the area better? We suggest that you mount your speakers in your wall to conserve your floor or shelf space. Better yet, get your electronics store to do it for you.



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Convergence



Nearly three out of every four Americans use a mobile phone on a daily basis, according to a report from the NPD Group. Whether you're an early adopter using the flashiest new phone or among the 26% of Americans who are likely thinking about joining the ranks of wireless phone users, one thing is certain: Today's phones are complicated, but they're nothing compared to the feature-laden phones just over the horizon.

Gartner, and electronics research firm iSuppli predicts that 2004 shipments will blow that figure out of the water, with more than 670 million wireless phones expected to ship by the end of the year.

Hardware brings in big bucks for both cell phone manufacturers and service providers, but the real money is in the wireless voice and data services. In the first six months of 2004, Americans had already used more than 500 billion wireless minutes, and Strategy Analytics estimates

service providers more than enough volume to make up for declining revenue. Here's a quick look at how they plan to entice you, along with some tips on what to look for when selecting a wireless phone and provider.

Here Today, Better Tomorrow

The major trend in wireless phones over the next few years seems to be more of the same, only much, much better. We

Is Coming

Be Prepared

by Tracy Baker

Competition is a wonderful thing. With users in countries such as China and India snapping up cell phones by the hundreds of millions and tech-savvy users in places such as Japan, Europe, and the United States demanding sleek phones with sexy features, every tech company wants a piece of the pie that just keeps getting bigger. Now that U.S. customers can easily switch carriers without changing their phone numbers, wireless providers are trying harder than ever to improve customer service and provide better value and more features to consumers. The Federal Communications Commission reports that more than 8 million subscribers have taken advantage of the new law, with nearly 750,000 additional people transferring their home or office phone numbers to a mobile device.

Keeping customers loyal has tremendous rewards considering how much money is at stake. Nearly 520 million wireless phones were sold in 2003 alone according to a report from marketing analyst firm

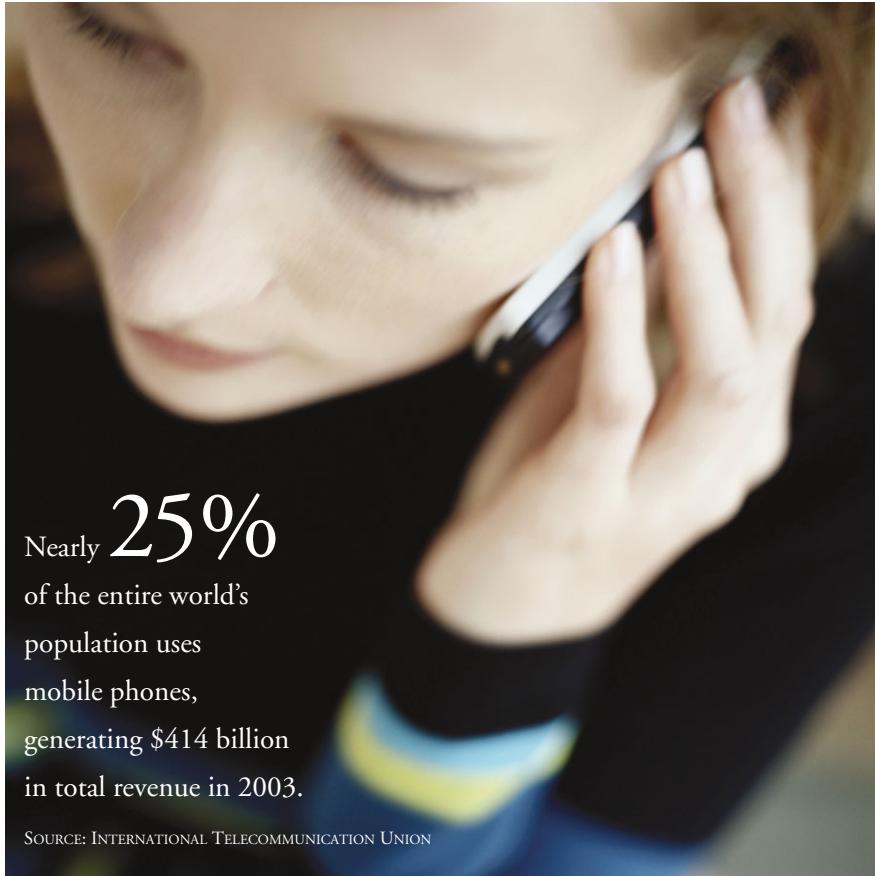
global revenue from wireless data transmissions (just data, not voice or other features) will rise from \$61 billion in 2004 to more than \$189 billion in 2009. Advances in processing and display and sound technology are opening up new avenues for wireless companies to make money, with mobile gaming expected to generate \$1 billion or more in 2004. A Yankee Group report even expects that pornography will find its way onto cell phones soon, raking in an estimated \$1 billion per year worldwide by 2008.

Despite the explosion in voice and data use, average prices are expected to fall for consumers thanks to the increased competition between wireless providers. The Yankee Group reports that the average revenue per wireless user will gradually fall from \$49.37 in 2004 to \$42.42 by 2007. At the same time, In-Stat/MDR predicts that the number of worldwide wireless subscribers will climb from 1.5 billion in 2004 to more than 2.5 billion by 2009, giving manufacturers and

already have camera phones and video phones and phones that handle all manner of multimedia, but the devices that are hot today will seem about as modern as cave paintings in a few years.

Camera phones are extremely popular, but their tiny lenses and crude sensors don't allow for much quality. That's about to change. Liquid lenses are being developed by companies such as Vari-optic (www.varioptic.com) that will let users zoom without extending the lens from the cell phone's case. Cell phone cameras with 1MP (megapixel) sensors, capable of taking pictures that can produce clear 4- x 6-inch prints, are about to be supplanted by products such as Samsung's 5MP-sensor camera phone available in Korea and a rumored 6MP-sensor phone being developed by LG and Canon. These improved sensors will also increase the quality of full-motion video captured by video phones, letting customers use their cell phones as miniature camcorders.

wireless phones



Nearly 25%

of the entire world's population uses mobile phones, generating \$414 billion in total revenue in 2003.

SOURCE: INTERNATIONAL TELECOMMUNICATION UNION

Also look for phones that double as MP3 players, giving users the ability to download high-quality music via their cell phone connection and listen to it using headphones. Most cell phone users are familiar with personalized ringtones, which replace the standard ringing sound when a call comes in, and now it's possible to extend that customization using ringback tones. These music files play when someone calls your cell phone, letting them listen to a song instead of ringing on the other end of the line.

Mobile phones capable of taking high-resolution pictures, playing full-motion video, and dishing out tunes need plenty of space to keep all of that data, so expect storage capacities to rise dramatically in the future. Battery life also is increasing, with some cell phones capable of running in standby mode for nearly two weeks

and offering nearly eight hours of continuous talk time. You won't have to worry about not having enough juice to talk if you've been listening to a lot of tunes.

Faster Internet connection speeds, which we'll discuss later, may usher in cell phone designs that resemble PDAs more than they do traditional phones. Expect to see larger screens that display more colors and sharper detail, along with integrated keyboards that let users browse the Web and send text messages more easily. The new Treo 650 from PalmOne is a good example of what we expect will be the rule instead of the exception in the future. (See page 50 for a how-to on the Treo 650.)

Sort Out The Services

When choosing a cell phone, choices are limited by the brands and models your

wireless service provider carries, along with the technology that your wireless carrier employs. In the United States, the two most prevalent digital cell phone technologies are CDMA (Code Division Multiple Access) and GSM (Global System For Mobile Communications). Knowing the differences between the two is important when choosing a phone and provider that will meet your needs.

CDMA (sometimes called Narrowband CDMA, N-CDMA, or cdmaOne) uses spread-spectrum technology developed during World War II to make efficient use of the frequencies allocated to it. In this system each time a phone initiates a call, whether it's for voice or data, the call is assigned a unique identification number and is spread out over the entire CDMA frequency range instead of being assigned to a distinct channel. That means calls placed on a CDMA network overlap one another, but it doesn't matter because the cell tower can use the unique identifiers to extract and route each call. The main benefit is that up to 10 CDMA calls fit into the same amount of bandwidth a single analog call requires, letting a single cell tower serve more callers.

GSM originally was popularized in Europe but has expanded rapidly over the past decade. It now boasts more than 1 billion subscribers worldwide. It relies on TDMA (Time Division Multiple Access) to assign callers unique time slots within a particular channel. By dividing up the calls this way, GSM can fit three calls into the same amount of space a single analog call requires.

The beauty of GSM isn't so much how it works as where it works, which is all over. GSM currently is as close as we've come to a world-standard cell phone technology, and GSM subscribers are able to roam throughout Europe and many other parts of the world without

wireless phones

losing their connections. Just don't send us the bill.

Welcome To The Next Generation

You likely have heard the term "3G" used in reference to upcoming cell phones. It stands for third-generation, with analog cell phones representing the first generation and current digital cell phones representing the second generation. Both CDMA and GSM have reached the peak of their second-generation iterations, and now the standards are ramping up to deliver on the promises of 3G.

3G is not a particular technology. It instead represents a raft of standards laid out by the International Telecommunication Union and other organizations that call for cell phones with the ability to transmit data wirelessly at much faster speeds than today's cell phones. To qualify as a 3G device, a cell phone must be able to transmit data at a minimum speed of 128Kbps (kilobits per second) when used in a car, 384Kbps when the phone is used at walking speeds, and 2Mbps (megabits per second, equal to 2000Kbps) when the device is completely stationary. In computer terms those speeds equate to anywhere from two times to nearly 36 times the speed a 56Kbps dial-up modem can achieve.

40%

of teenagers in the U.S. are wireless subscribers.

SOURCE: IDC



With 3G, cell phone users will likely eventually access the Internet at unprecedented speeds (for cell phones, anyway), watch streaming video files, and access other data such as pay-per-play games that require a lot of bandwidth. Deployment will take years as 3G services and phones are only just beginning to roll out in the United States. In some U.S. markets, 3G UMTS (Third-Generation Universal Mobile Telephone Standard) technology is available, which is an updated offshoot of CDMA. Its main competitor likely will be the 3G variant of GSM, appropriately called 3GSM, which also is available in select U.S. markets.

Wi-Fi wireless Internet technology, used mainly in wireless home networks and to create wireless hotspots in public places, such as airports and coffee shops, is also poised to merge with cell phones over

the next few years. **Wi-Fi** is used to transmit Internet data over a wireless connection, and Wi-Fi-enabled phones have the potential to access the Internet inexpensively at speeds of 11Mbps or faster, possibly switching to 3G wireless Internet access when they roam outside of a Wi-Fi coverage area. Those kinds of speeds allow for very fast file downloads (approximately one minute of high-quality compressed audio per second) and also are ample for supporting streaming full-motion video files.

Don't worry about jumping on the 3G bandwagon too soon. A report from the ARC Group estimates that 3G handsets will account for only 4% of total mobile phone sales worldwide in 2004, and the technology is not expected to hit the mainstream until 2006.

Take Control

Today's cell phones come with a dizzying array of features and manuals that would put a PC instruction guide to shame, but the setup guides that follow will help you easily get the most from your new phone. If you don't have one of the models we've covered this month, glance through each article for tips and information that may directly or indirectly apply to your hardware. With just a little bit of knowledge, you'll be using your cell phone for much more than making voice calls in no time. 

Sales of music-enabled wireless phones will reach

450 million units

by 2009.

SOURCE: STRATEGY ANALYTICS



Kyocera Koi: how-tos

Kyocera Koi
\$149 to \$199 (Price varies according to service provider promotions)
www.kyocera-wireless.com



The Kyocera Koi may share its name with colorful Japanese carp, but any similarity to fish ends there. This is one Koi you won't mind holding to your ear. It combines cell phone and camera functions with a few other goodies, including games and, your service plan permitting, wireless Internet access.

As of this writing, the Koi is available only with service plans from Verizon Wireless (www.verizonwireless.com), where it's known as the KX2, although by the time you're reading this, other carriers may be offering it, as well.

Out Of The Box

If you don't receive your Koi already assembled, insert its Li-Ion (lithium-ion) battery. Pop the compartment cover off the back of the phone and snap in the

battery; make sure you've lined up the contact points on both. Next, charge the battery by plugging it into the power adapter. We went from near dead to a full charge in slightly under 90 minutes, and for that, you'll get about 3.5 hours of talk time.

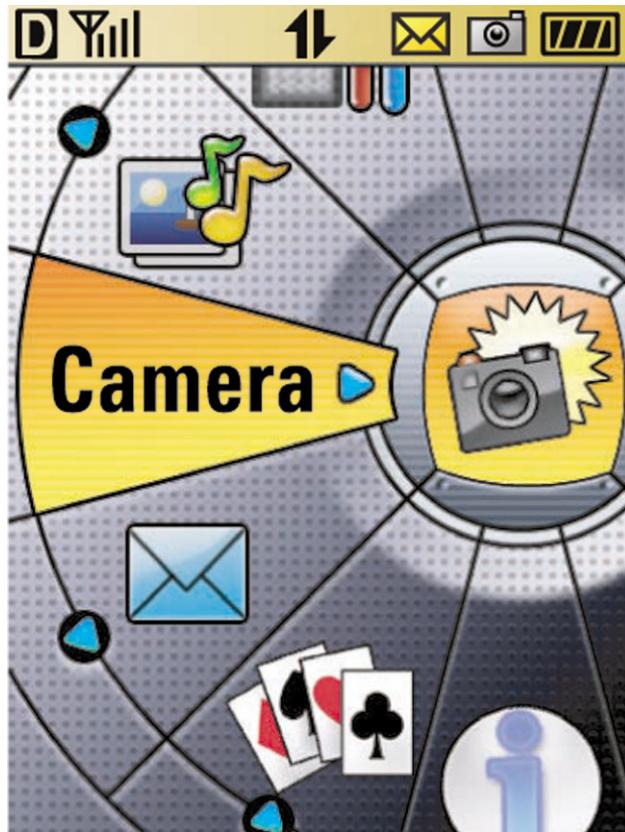
The Koi opens on a swivel; just spin the top half to the right until it clicks into place. To turn on the Koi, press the red End key, which also terminates calls and takes you straight to the display's starting screen, no matter how deeply into the menu system you may have navigated.

In the upper corners of the keypad are two other buttons of prime importance. They act as soft-keys, their functions varying with the corresponding menu buttons at the bottom of the display. On the starting screen, the left button accesses the phone's menu, and the right opens your contacts list.

To place a call, check the row of status bars in the display's upper-left corner to make sure you have a signal. Assuming you do, enter the phone number on the keypad and press the green Talk button. After you've stored names and numbers for family, friends, and work associates, you can take a shortcut: Just open the contacts list, scroll down to the person's name with the keypad's round, four-way navigation key (or the jog shuttle lever on the left edge), and press the Talk button. The Koi also lets you assign contacts a speed dial location, for even quicker access.

Photo Function

To snap a picture, press the silver release button on the back of the phone and slide the protective panel up to reveal the lens. Frame your shot in the display and then snap it by pressing the OK button, the left soft-key, or the jog shuttle. The latter also lets you



The Kyocera Koi provides three choices for menu view, including List and Graphic (rows of icons), but the animated Wheel is the most fun. You can spin through the options by pressing up and down on the navigation key or the jog shuttle lever.

operate the camera when the Koi is swiveled shut.

Voice-Activated Calling

We may not have our hovercrafts yet, as all those science fiction movies promised, but we can at least talk to some of our gadgets and count on them understanding us. With the Koi, you can place calls by speaking the name of the person you wish to dial. All it takes is creating a voice tag for a contact.

Create a voice tag. Open the menu, select Contacts, and choose the Add Voice Dial option. The phone will twice prompt you to speak the contact's name. The voice tag doesn't have to precisely match the contact's text. For instance, you may prefer to input contacts so they're listed last-name-first, as in the phone book. But you don't have to conform to that order for the voice tag. If it feels

more natural for you to say the first name and then last name, that's fine; the Koi associates the contact with a specific recording.

After you've recorded the voice tag, the Koi stores it in memory and gives you two options: You can create a new contact for it (use the keypad to input the name and number) or add the tag to an existing contact. If you choose the latter option, the phone prompts you to navigate to the pertinent contact, but neither the phone nor the manual instruct you on what to do once the contact is open. And that's important for finishing the job! All you have to do is use the navigation key to highlight the contact's number and press the OK button.

Place a call. Using voice activation, you can make calls regardless of whether the phone's swivel is in the open or closed position.

With your phone open, press the Talk button, and, at the prompt, clearly speak the name of the person you wish to call. With the phone closed, press the jog shuttle inward. This action opens the menu. Navigate to Voice Dialing and press the jog shuttle again, and the phone will prompt you to speak your contact's name.

In addition to saying your contact's name at the prompt, you can also say "Dial," which will prepare the phone to respond to spoken digits. For many situations, this is a good option to have, although it's much slower than using the keypad. Rather than saying the phone number all at once, the Koi requires you to speak one digit at a time; after it repeats the digit, only then should you say the next. ☎

BY BRIAN HODGE

palmOne Handspring Treo 650: how-tos

palmOne Handspring Treo 650
\$449
www.palmone.com



It seems like yesterday that the Treo 600 was capturing headlines about digital convergence. Now, a few months later, along comes the Treo 650 to capture a few more. The differences between the two aren't drastic, but they show a trend toward more sophisticated gadgetry. The screen resolution is significantly higher, 320 x 320 pixels instead of 160 x 160, meaning you'll have a crisper, more readable display. Less noticeable is the device's new nonvolatile memory system, which unlike its predecessor, won't lose data if you remove or run down the battery. Finally, the 650 gives you a small camcorder so you can capture video and sound good enough for sending over the Web.

First, charge the battery; the Treo won't start until you do. Insert the battery into the phone and plug the Treo into a wall receptacle until the indicator light turns a solid green.

Once charged, use the Treo as a PDA (personal digital assistant) or a camera or camcorder. To use it as a cell phone, activate the Treo with your provider. It may have shipped activated, in which case you must unlock it. To do so, press the Power button to turn it on and type, on the keypad, the four-digit lock code provided when you ordered the phone. If you can't remember the code, call your provider's customer service line.

If you're upgrading to the Treo 650 from a cell phone with a small SIM (Subscriber Identity Module) card, transfer the card from the old phone to the new. Remove the SIM card from the old phone, remove the SIM tray from the Treo, and slide the SIM card into the SIM tray. Press the SIM tray back into the Treo, turn on the phone, and place a call.

Now, you're ready to roll. Press the Application Launcher key on the keypad to discover the programs installed on

the Treo. Open the Memo application and input words and numbers with the stylus. Use the five-way Navigator button to maneuver around the menus and make selections. Practice typing on the keyboard, paying attention to working with the Shift and Option keys. Plug in some headphones, launch the MP3 player (RealPlayer), and listen to the song stored on the device, whetting your appetite to transfer more songs from your PC.

To take pictures, open the Camera program from the Applications menu, hold the Treo so its back faces the subject, compose the photo, and press the center button on the five-way Navigator. You take videos in much the same way: Open the Camcorder application and point the back of the device at the subject. Hold the center button to record and press the icon to view. In the case of both pictures and videos, press Save to keep the picture, Delete to get



The 650's colorful icons show at a glance the applications installed on the device.

rid of it, or Send to launch your email application and send it to a contact.

Synchronize With Your PC

The strength of a PDA lies in its ability to organize day-to-day details, particularly email messages, calendar, and contacts. If you use your PC for organizational tasks, and you want your Treo 650 to accomplish the same tasks, use your new PDA in conjunction with your PC to ensure the two stores of information match. The process is called **synchronization**.

Your Treo's software package gives you two options for synchronization. If you use Microsoft Outlook for personal information, configure the Treo to share Outlook's data. If not, install the Palm Desktop also included on the CD. Palm Desktop isn't as feature-rich as Outlook, but unless you have an extensive set of business clients and need to keep tabs on all of them, it's perfectly adequate.

Install the software for the synchronizing program you'd like to use from the CD. After installation, plug the wide end of the multiconnector (included in your Treo kit) into the bottom of the 650 and run the power cable from the power port on the multiconnector to a wall socket (no point wearing down the battery while the devices are synced). Finally, plug the end of the USB cord, which emerges from the multiconnector, into a USB port on your PC. You may get a more stable connection over time by using the USB ports at the back of the PC because connections on the back go directly to the USB card and don't move, while the cable connecting the front port to the motherboard may loosen over time.

Once connected, the Treo displays a message that it's ready to synchronize. Press the HotSync key, located on the multiconnector just below the Treo's keypad. The Hot-Sync process transfers data to and from the Treo and the PC,

adding, deleting, and modifying entries until they match. All entries from the Calendar, Memos, Contacts, Tasks, Pics and Videos, and VersaMail (the Treo's built-in email program) folders and data stores sync with the corresponding data store in Palm Desktop.

If you choose to synchronize with Outlook, only the Contacts, Calendar, Memo, and Tasks information exchanges automatically. To synchronize your email messages between Outlook and the Treo, you need to configure VersaMail to do so. But be careful; Outlook users tend to let messages collect until the file becomes extremely large, and it's easy to overwhelm the memory on a PDA during the transfer. Clean out your Outlook mailboxes before syncing with your Treo (Outlook's Archive feature does the trick), and we recommend doing so regularly. 

BY NEIL RANDALL

LG VX6100: how-tos

LG VX6100
\$149.99, after service commitment
www.lgusa.com



Just slapping a lens and shutter on a phone doesn't cut it anymore. Most new mobiles have cameras, and most of them stink. What good is a picture if you can't make out what it is and can't share it? We're excited about the potential for easy, instant, and shareable photography, but the technology has yet to live up to its promise. Manufacturers are coming around, though. LG's new VX6100 is a good example. We'll show you how its PIM (personal information management) features and improved camera can make your life easier and richer.

The VX6100 is a Verizon phone, available at Verizon Wireless locations, select Circuit City and RadioShack stores, or on the Web at www.verizonwireless.com. After activating the phone, stroll through the Quick Reference Guide and review the Getting Started info. Press

and hold the End button to power the phone on and off. Press the Left Soft Key at the top left of the keypad to access the main Menu; we'll use these options to configure Contacts (an address book), Schedule (a calendar tool), and camera settings.

First, a few notes about entering information with the VX6100. On data-entry screens, you switch between letters, numbers, symbols, and predictive text by pressing one of the Soft Keys. You'll see a label for the current entry type (ABC, 123, Symbols, or T9Word). Press the Soft Key on whichever side the label appears and select a new entry mode. T9Word is a predictive typing tool we found more annoying than useful. Use the pound sign (#) button for spaces and CLR for backspace. Press the 1 button repeatedly to bring up a period or an at symbol (@).

One of the VX6100's handiest features is its 499-entry address book. With this

phone, you don't need to carry a PDA or spend a fortune on a **smartphone** (a PDA/mobile phone combination). Enter contacts from the main menu (open the phone and press the Left Soft Key) by selecting the Contacts option (number 2). Choose New Number (number 2) or New E-mail (number 3). Enter the number (or address) from the phone's keypad and press OK. Choose the type of entry (Home, Office, or Mobile), press OK again, and enter the contact's name with the keypad. Press OK to save the information. Each entry can store up to five numbers and three email addresses.

The VX6100's 300-event calendar tool is another great personal information feature. Access the Tools menu (number 8) from the main menu and choose option 2 (Schedule). Navigate with the directional pad to your desired date (Up and Down keys move a week at a time) and press OK. Use the Left Soft Key to add an event. Select the time category and



set the time with the directional pad (or press the number keys for hour and minute). Press OK to return to the menu, navigate to Content, press OK, and enter the text title or reminder for your event. Press OK when finished, set any recurrence or alarm options, and press the Left Soft Key to save.

Camera phones are a dime a dozen these days, but the VX6100 adds a few interesting features. It has a flash, helping you take better pictures in less-than-optimal light. The sliding lens cover protects your camera from pocket and purse damage. It also has a one-touch shooting mechanism that lets you take shots even with the phone closed.

Let's start with the basics. First, slide the lens cover open. With the phone on, press the camera logo button (just underneath the CLR button) to enter camera mode. You can also choose option 1 (Camera) from the main menu.

The phone's color LCD becomes the viewfinder, with information about image resolution, zoom, storage space, and flash along the top of the screen. Press the Voice Dial/Flash button along the bottom left side of the handset to turn the flash off and on. Press the Right and Left directional keys to zoom in and out. Press the Right Soft Key to view and configure camera options. Start with Resolution. Scroll down and press OK. Images below 640 x 480 (0.3 megapixels) aren't of much use, so we recommend using the Hi setting. You can also take pictures with the flip closed by pressing and holding the camera logo button along the right side of the handset, though the small external LCD is monochrome and located immediately beneath the lens. In other words, it's really only useful for self-portraits.

The VX6100 stores up to 60 photos, though you can upload up to 75 additional shots to the free Verizon Pix

Place site (www.vzwpix.com) for online viewing and downloading. Browse saved pictures by activating the camera function and pressing the Left Soft Key (below the Gallery label). Scroll through the Gallery thumbnails and press OK to open an image. Press the Right Soft Key button to access Options. Select Send to email the picture (with text message) to any address or send an instant multimedia message to another Verizon customer. Option three (Set As) lets you assign an image to a Contact record or set it as wallpaper.

LG's VX6100 nudges phone photography forward. The camera flash and range of photo options make mobile digital photography more useful, while the personal information management features help you stay organized without keeping track of yet another device. 

BY GREGORY ANDERSON

Samsung VM-A680: how-tos



Samsung VM-A680

\$309.99

www.samsung.com

If you're already tired of taking static pictures on your cell phone, you may want to try Samsung's VM-A680—a new video phone. And the only thing easier than recording your first video is setting up your phone.

Remember, that small, frail computer chip-like card (the Subscriber Identity Module, or SIM) you were always scared of breaking? You can forget about it now, because it's gone. Now, a coaxial jack, guarded by a hard-to-open door, transfers your phone's memory (including the address book).

Begin the setup process by removing the battery from the box and writing down the ESN (Electronic Serial Number), which is the 11-digit number with the barcode on the battery dock. You need the ESN to set up the phone from a land line. Plug the battery into the back of the phone and charge the phone for four hours or so before using. As the phone

charges, the exterior screen zooms in and out on an animated battery to entertain you if you have nothing better to do than watch electrons caravan into your battery. After the battery is fully charged, the red light on the front of the phone will turn green.

Though it seems counterintuitive, press and hold the END button to turn on the phone. From there, the phone is a pleasure to navigate. The screen displays five options: the Camera options in the center; the Address Book to the top; the PCS Vision Internet connection to the right; the Download Center, where you can get rings, games, and screen savers to the bottom; and the Voice Activation options to the left. Pressing the OK button with the envelope icon accesses the messaging center. Lastly, view and change any of the phone's settings in the top-level menu by pressing the MENU button at the top right of the phone's keypad.

As this phone was designed only for Sprint PCS service, picking your service is pretty streamlined. All you need to set up your service is your phone (or your ESN number), your Social Security Number, your driver's license number, your city and state, and a pen or pencil. Press *2 (star 2), press TALK, and follow the Sprint voice prompt. After getting that nitty-gritty out of the way, settle back and take some time to explore the phone. You should find helpful utilities, such as voice activation, which lets you dial by saying a name or number, or record a memo for yourself; the ability to create groups simplifies the address book. Navigate the top-level menu using the directional pad and the OK and BACK buttons, and you should find option 8 (Settings), yields a treasure trove of useful functions. You might like the guard that requires you to enter a code to make calls in roaming areas—preventing your money from flying out of your pocket without your knowledge.



Also, the Airplane Mode setting is particularly useful: You can disable outside transmission while accessing other functions, such as the calendar and a mean game of Space Invaders. The phone is also compatible with select TTY (tele-typewriter) devices, allowing users who are hard of hearing or who have other speech or language disabilities to communicate by phone.

Capture, View & Send Videos

When you're not gabbing on the Samsung VM-A680, make sure you take advantage of its video recording capabilities. To record a video, press the center blue button with the camera icon, scroll down to number 2, and press the blue camera button again. Press the blue button and, for 15 seconds, record your buddies singing karaoke while pretending to be on the phone.

To personalize and stylize different recordings, there are options a plenty. While in Camcorder mode, before recording, press MENU and use the OK button to select from 9 options, including Audio, Camera Light On/Off, and Timer. Advanced options include Monochrome and Negative Image Recording, with many variations in between. After recording a video, press the END button and press the Camera button to return to the Camera options. Now, you can experience all the joy of home movies without lugging around the extra equipment (and admittedly, little of the image quality or videos lasting longer than 15 seconds). To watch a video, use the directional pad to navigate the videos, pick the desired recording, and quickly gather your friends around so they don't miss the 15 seconds.

You can turn videos into screen savers, a picture that pops up in addition to or as a substitute for a ring tone, or picture ID's for any of the phone book's numbers.

Upload the pictures and videos to the Internet using the PCS Vision connection. You'll probably appreciate most the ability to effortlessly send pictures and videos to friends. After accessing the My Video menu, highlight a video. Similar to editing the recording setting, press the MENU button to access the list of options and pick the Send option. From here, you may send the video to any mobile number by entering the number or selecting it from the phone book. You can also email the video (yes, directly from the phone) from the same window. Scroll down and insert an email address where prompted. To save wear and tear on your fingers, you may send the same video to multiple numbers and/or email addresses at the same time. You can also send more than one video at a time, combining eight 15-minute segments into a 2-minute epic all at once instead of clicking the same sequence eight times. ☎

BY PAUL ROGERS

Nokia 6620: how-tos

Nokia 6620

\$399.99

www.nokia.com



The Nokia 6620 imaging phone offers real-time video streaming capabilities, a fully integrated Internet browser, and a PDA calendar and contact application that you can synchronize over the air or directly to your PC through a cable, infrared, or Bluetooth connection. In addition, the Nokia 6620 contains a range of the newest multimedia features, giving you several ways to create and share images, audio, and video files.

Set It Up

The Nokia 6620 has both an SIM (subscriber identity module) card and a 32MB MultiMediaCard memory card. The SIM card holds your mobile phone number and subscriber information. It also stores your personal contacts so you don't overwhelm your phone's memory. This makes it easy to move personal information

between phones, and it'll come in handy if you ever decide to transfer service.

The memory card can be used to store multimedia files such as photos, music, and video clips. If you need more storage space, you can easily replace this card with a larger capacity memory card (up to 128MB).

To install both the SIM card and the memory card, first make sure the phone is disconnected from the charger and turned off. Remove the back cover by pressing the locking latch and sliding the cover off the phone. If necessary, remove the battery.

Starting with the SIM card, slide the grey latch toward the bottom of the phone, exposing the SIM slot. Carefully insert the SIM card into the slot, making sure the beveled edge faces the top-left corner of the phone and the gold contact plate on the card is facing down.

While holding the SIM card in place, slide the grey latch all the way up to expose the memory slot. Insert the memory card with the beveled edge facing the bottom right of the phone and the gold contacts facing down.

When the memory card is installed, move the grey latch back to its midpoint position to lock both cards in place. You can verify the latch is in the midpoint position when the dotted line on the phone lines up with the dotted line on the latch. Make sure the grey slider is in this position to insure both the SIM card and the Memory card are secure.

Replace the battery by aligning the gold contacts on the battery with the gold contacts on the phone, and then click it into place. When the battery is secure, replace the back cover. You charge the phone by attaching the power cord of the charger to the connection at the base of the phone. The battery indicator will



scroll while charging. When the scrolling stops, the battery is fully charged, and you are ready to use the phone.

Create & Send Multimedia Files

The Nokia 6620 has a built-in 640 x 480 VGA camera and a 65,536-color screen for viewing still images and video clips. You'll also find a 2X zoom feature, a self-timer to delay taking a picture until you can get in the shot, and a night-mode setting to make up for the lack of a flash.

The video resolution is limited to 176 x 144, and the recorded video length is restricted by available memory. With a 32MB memory card installed, you can record for up to 10 minutes, but it's better to keep your videos short if you plan to email them to friends and family.

When you want to record a video, turn on the phone and select Camera from

the opening screen. The display becomes a viewfinder. You can switch between the camera and video recorder by simply moving left or right with the joystick. Move to video mode by pushing the joystick to the right.

When you're ready to record, press the joystick in. A red light appears in the left corner of the display and a timer appears on the right. This shows both the length of the clip as it records and the time remaining depending on the amount of memory available. Pause the video by pressing the Pause button. Press it again to resume recording. To stop recording, press the Stop button. The 6620 automatically saves video footage in the video clips folder in the gallery.

The Nokia 6620 includes a full email client so you can send multimedia files. It's even possible to put together timed slideshows, incorporating music, text, and audio commentary in your messages.

To create a multimedia message, select Messaging from the main menu and open a new message. Add a recipient by selecting the To: box and pressing the Options button to retrieve a contact. Choose either a mobile number or an email address and press OK. Scroll to the body of the message, press Options, and select Insert Object. You'll need to select a media type and browse to the folder containing the file you want to send (in this case, the Video Clips folder in the Gallery). When you find the correct image, sound clip, or video file, press Select to insert it in the message. When you're finished, press Options and select Send.

Because sending Multimedia Messages depends on the network your service provider uses, you'll need to contact your service provider or go to www.nokia.com/us/settings to configure the Nokia 6620. 

By JOHN RECTOR

Dejargonator: GPRS

PRS (General Packet Radio Service) is a new type of data service that lets cell phones and other wireless devices exchange data faster and more reliably than earlier wireless data technologies that severely limit transmission speed and/or the amount of data that can be sent. GPRS also provides an "instant connection" without the delays associated with dial-up connections. As a result, today's GPRS devices offer features that more closely resemble their desktop equivalents.

With GPRS, you'll have a speedier and more reliable Internet surfing experience. Real—though scaled down—browsers load actual Web pages, as opposed to specially coded Web-like pages that were the standard in earlier devices. GPRS devices can handle the same email that you send and receive on your desktop computer. You can send graphics and limited video to and from wireless devices. For example, you can send or receive within three-to-five minutes a couple of graphics with high enough resolution to print at 5 x 7

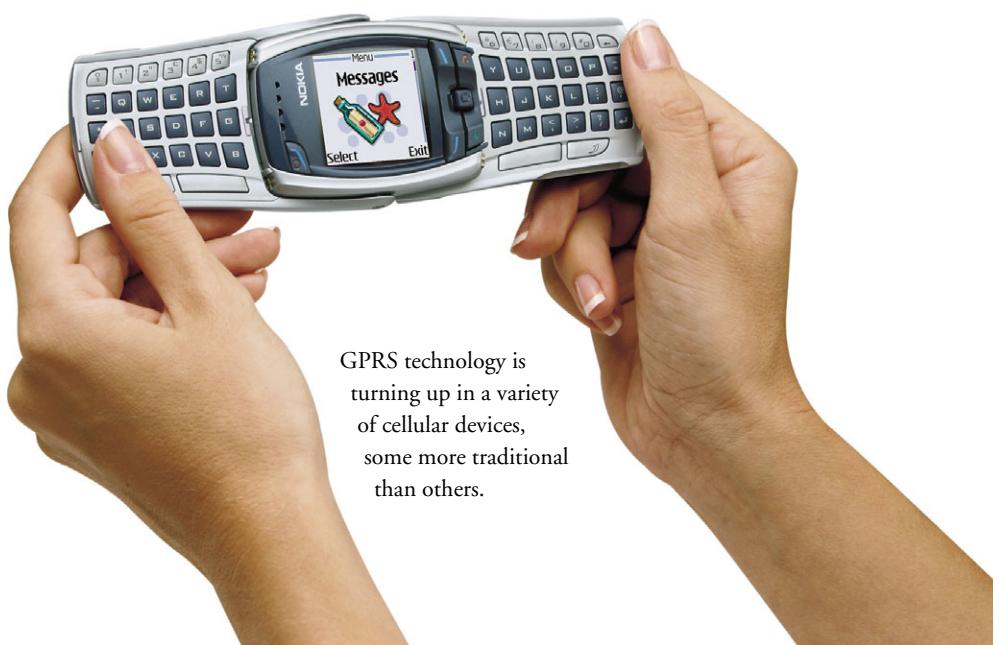
inches or a VHS-quality 1-minute video. **Latency**, or **lag**, that made live activity impractical, has been vastly reduced, so activities that require real-time interaction are feasible. For example, you can chat, play multiplayer games, and receive live data feeds, such as stock quotes or sports data. You can also transfer files between devices. You can download ringtones and graphics, as well as applications that run on many of today's cell phone operating systems.

There are, of course, limitations. You'll rarely attain theoretical speeds in real-world use, and even though GPRS technology is rated over 10 times faster than its GSM (Global System for Mobile Communications) predecessor, it still pales in comparison to a broadband Internet connection. You can probably expect speeds roughly equivalent to a modem-based, dial-up connection on your home PC. And although GPRS lets you download standard Web pages, you'll still find the best experience on those sites that provide scaled-down versions of key pages that are better suited to the slower speeds and small screens inherent in cell phones and PDAs. Many of the Internet's more popular destinations offer pages and features designed specifically for wireless users. (Try the Web site mobile.yahoo.com.)

In order to use GPRS technology, you must have a phone or another wireless device that supports it, along with a subscription to a GPRS-enabled plan with a GPRS-enabled provider. Virtually all the major cell phone manufacturers are now making GPRS models. Several of the biggest service providers are embracing the technology, including AT&T, Cingular, and T-Mobile. As always, choose both equipment and service plans carefully. Just because a service provider offers GPRS doesn't mean that all users automatically get the service. Some plans include the technology, while others do not. Some plans allow the use of GPRS services at extra cost. Avoid disappointment and expensive surprises by reading the fine print in today's ultra-competitive wireless marketplace.

Uses for GPRS outside the more common consumer tasks include digital dispatch systems for operations such as police and taxis or even remote-control home automation services. In short, GPRS opens a plethora of data services to wireless devices and makes those services truly practical. ☐

BY JERRY HATCHETT



GPRS technology is turning up in a variety of cellular devices, some more traditional than others.

What's Next

For Wireless Phones?

A Look At The Future Of Mobile Communications

In the past few years, cell phones have advanced from little more than glorified radios to progressively more sophisticated media and communications devices. Gadgets that once struggled to carry voice communication now perform as text messaging devices, digital cameras, and video games. The technology is so new, it's hard to comprehend what's available now, much less anticipate the future. Part of the problem is that whenever wireless engineers talk about the gadgets they're creating, they end up speaking in an indecipherable alphabet soup of tech talk: GSM, CDMA, WCDMA, EDGE, GPS, HSDPA, OTA, HSUPA, UMTS, EV-DO, SPQR. OK, the last one isn't a wireless acronym, but the confusion is real. We've cut through the jargon to bring you the scoop on what you can expect from wireless phones in the coming months and beyond.

3G: The Next Generation

If you've heard the clamor over 3G cell phones and networks, you may wonder what all the fuss is about. 3G stands for the third generation of cell phone technology. You might remember the first

generation of cell phones; they were brick-sized analog behemoths available during the 1980s. In the 1990s, mobile phones evolved into the smaller, sleeker digital phones of the 2G (second generation) generation that we're accustomed to. In the last few years, as data services such as email and picture messaging have become popular, companies have made provisional upgrades to their networks, making them more data-capable, and the latest iteration of phones that use these networks are known as 2.5G. These phones can handle some of the data transmissions that 3G will, but not nearly as quickly or gracefully. Their speed tops out around 144Kbps (kilobits per second), making their data transfers only marginally faster than dial-up Internet. Sending a single, medium resolution photograph might easily take 30 seconds.

3G networks will boost the speeds of cell phones to broadband levels, making an array of new services available. With 3G phones, you can send and download video messages in seconds, surf the Internet quickly, and download digital music. Essentially, 3G phones will

become very small, portable, Internet-enabled computers. 3G doesn't provide all of these services itself, but it provides the data transmission speed to make them possible. Think of 3G as a new wireless superhighway, so fast that manufacturers will eventually make sports cars for it with features you can't even imagine.

But when will this highway open? 3G networks are already being rolled out in



wireless phones

major cities. In August 2004, Sprint (www.sprintpcs.com) announced the availability of streaming video on its nationwide network. In September 2004, Verizon Wireless (www.verizonwireless.com) turned on its new 3G networks in 14 cities and 20 airports. It plans to spend \$1 billion during 2005 to upgrade the rest of the country. AT&T and Cingular Wireless (www.attwireless.com), who have recently merged, currently have six metro areas covered with their 3G networks. However, because of the great cost of upgrading equipment, their 3G networks may not be available nationwide until the end of 2006.

Go, Go Gadget Camera

Once a rarity, it's now difficult to buy a wireless phone without an integrated digital camera. Some stores don't even stock phones without a camera component anymore. Analysts predict that, for better or worse, the trend will continue. Not only will the cameras be ubiquitous, but they'll also start taking good pictures instead of the strange, grainy images of today's devices. Camera-phone resolutions top out at 1.3MP (megapixels); they produce informative, but usually unattractive, pictures. However, the cameras' sensitivity to detail will climb over the next three years until it levels off at about 5MP. These devices will rival today's midlevel consumer cameras and produce sharp, clear images when printed as large as 8 x 10 inches, probably rendering the stand-alone digital camera obsolete for all but the most discriminating photographers. Recent models have already begun to include a flash and a zoom lens. The trend is accelerated by the fact that new 3G networks make it easier to get pictures off a phone than a camera. There's no fussing with memory cards or cables; just press a button and email the shot home.

TV On The Go

It's pretty commonplace to use your phone to take and send still pictures, but with a few higher-end phones, you can also record and email short video clips. Expect such video messaging to become much more common in the next year, as well as much more robust. The short, grainy, jerky clips will be replaced by smooth, detailed shots that can last long enough to be worth watching. What's more, they won't take all day to send and receive. The 3G networks will carry off a 30-second clip in only a few seconds.

But clips you create won't be the only thing you're watching. Sprint has already introduced a wireless multimedia service that broadcasts video on specially equipped phones. You can access sports highlights, news clips, even TV shows. It uses streaming technology, much like many video clips currently on the Internet, so you can watch the movie as you download it, with no waiting.

By the end of 2005, wireless videoconferencing will be readily available in the United States. As with camera phones, the quality of the footage for video phones may be poor initially, but it won't be long before video will be good enough to hold small video conferences over the phone, from anywhere that's covered by a network. If you regularly rely on friends to help accessorize your suit in the morning, you'll likely find video phone technology invaluable. Call the person whose advice you desire and show her what you have.

Musical Matters

The upgrades coming to mobile phones aren't limited to visual content, though. Phone makers have caught onto the popularity of digital music and won't be left out. Several phones currently on the market have built-in software that plays **MP3s**, the highly compressed sound format that squeezes songs down to about 1MB per minute. Expect to see changes in the way phones integrate



This Bluetooth headset will let you talk hands free and wires free (\$79.99; www.motorola.com).

Does Your Cell Phone Have Blue Teeth?

Or rather, does it have Bluetooth? Bluetooth is a short-range (33 feet) wireless system that can connect electronic devices and allow them to work together. It's already available, and it's becoming more common in devices as varied as phones, computer keyboards, and cameras. If your phone can speak this electronic language, then you can connect to an enabled car speakerphone, headset, PDA, or computer without the hassle of wires to talk hands free or transfer data.

these music functions and how many songs you can store.

Current phones store, on average, only a few songs or a few dozen pictures at a time. Expect increases in storage capacity to push those numbers into the hundreds in the next year. Experts, such as Cherie Gary, a vice president of Sony Ericsson, predict that in two years, cell phones will carry small hard drives capable of storing thousands of songs and several full-length movies. Devices such as the Treo 650 (www.palmone.com, \$599; see page 50 for information on how to set up the Treo 650) already use removable memory cards, such as SD (Secure Digital) cards, that can store up to 1GB of data.

The biggest advantage of integrating an MP3 player with a broadband-enabled phone is, as with a camera, that it makes transferring files easy. You can download MP3 files from anywhere, and you can move the files from phone to computer or vice versa without connecting cables. Imagine hearing a song streamed from a radio station digitally to your phone, downloading it, and sending it to a friend—all while walking down the street.

Where Am I Calling From?

Not all new wireless technology is geared toward turning your phone into a multimedia entertainment center. Soon, your phone will help you get where you're going. Starting in 2005, the FCC will require that all phones be equipped with GPS (Global Positioning System) receivers that allow emergency workers to pinpoint your location to within a few feet when you call 911. In addition to potentially saving lives in an emergency, the chips will also usher in a new job for wireless phones: giving directions.

Currently, only one U.S. carrier, Nextel (www.nextel.com), offers the service, but analysts predict consumers will demand it once they catch on. GPS mapping devices can show you your current location,

U.S. Cities With 3G Networks

These cities currently have operating 3G networks. Expect the lists to grow in the next year.

AT&T/Cingular:

Seattle, Wash.
San Francisco, Calif.
San Diego, Calif.

Phoenix, Ariz.

Dallas, Texas
Detroit, Mich.

Verizon:

Atlanta, Ga.
Austin, Texas
Baltimore, Md.
Dallas, Texas
Kansas City, Mo.
Las Vegas, Nev.
Los Angeles, Calif.
Miami-Fort Lauderdale, Fla.

Milwaukee, Wis.

New Orleans, La.
New York, N.Y.
Philadelphia, Pa.
Washington, D.C.
San Diego, Calif.
Tampa, Fla.
West Palm Beach, Fla.

and combined with a road database either on the phone or online, they can also direct you to a particular destination. Expect more GPS-enabled phones to appear on the radar screen in the next year.

Software Update

As the software that runs the phones gets more complex and connected, the phones are going to begin to work more like computers. Consequently, they'll be able to update their software over the network. With an OTA (Over-The-Air) update, you'll use your phone longer—when you need a new function, you can simply upgrade the software. Plenty of phones support limited upgrades, such as downloading new ringtones and games, but soon the system software that controls the way your phone behaves will change, letting it run the latest programs and regularly inoculating it against electronic viruses.

The All-In-One Device

The next generation of cell phones will be a step closer to the fantasy of a true electronic Renaissance device, an item capable of performing many different functions that does them all well. The integration of better cameras, better video, better sound, and a faster way to connect to the Internet may put phones in direct competition with many other devices whose functions they will supplant. The cell phone will probably always have an advantage, because you already carry it with you, and because so many people buy them. The prospect of carrying one electronic device that lets you communicate in many different ways is an exciting one. If you get one, though, be careful: Nobody has developed the technology to prevent you from losing it. 

BY JOSEPH BELL

Photo Kiosks

Put Digital Pictures In Your Hand



With the advent of cash machines, automated airline check-in, and self-service grocery checkout, we expect—and usually get—the world at our fingertips. So why do we still wait hours (or even days) to process digital photos? And why are so many great digital snapshots buried on mammoth hard drives, never to see the light of printed day? Photo kiosks, do-it-yourself photo-printing machines, offer an easy, fast, and affordable way to print your digital pictures.

We have to lead with a disclaimer, though. There are at least a dozen manufacturers of photo kiosks, and each model is different. They have been popping up in drugstores, shopping malls, camera shops, and copy centers. Every location that installs a kiosk controls options, availability, and pricing for its units. In other words, the details vary. But we'll help you understand the most common features, figure out where to find a kiosk near you, and walk you through the general process of turning your digital files into sparkling new prints. Almost all kiosks have simple, user-friendly touchscreen menus, and most offer on-screen help, so you have little to fear. If you can use an ATM, you should have no trouble with a photo kiosk.

Oh, The Possibilities

Photo kiosks offer a variety of features that you can use to make your pictures your own and print them easily.

Make copies. For starters, you can preview pictures from your digital camera's memory card and select only the ones you want to print, ignoring the rest. That alone represents a quantum leap from traditional lab development (and creates cost savings even when per-print prices are higher because you aren't wasting money developing pictures you don't want). You can also select the number of copies to print for each picture.

Have fun with your photos. Digital photo kiosks often let you play around and add borders (select from predefined libraries and festive themes), add text, or exchange your picture's color for a black-and-white or sepia tone (which gives your picture an antique look). Some systems have calendar and greeting card templates that you can customize with your own images.



Zoom and crop. Zoom and Crop features let you zoom in on points of emphasis, crop out unwanted elements, and print only the selected portion of the original picture. On most systems, you'll see a colored box framing the portion of the image you want to print. Enlarge or reduce the box and move it around to select just the right section.



Choose a size. The most basic machines create 4- x 6-inch prints only, the most affordable and most common format. Other machines offer layouts as large as 8- x 10-inch prints or collections of 5- x 7-inch, 3- x 5-inch, and wallet-sized prints (similar to traditional photography studios). Almost all systems let you create a Photo CD that stores your edited image files for future printing or archiving. More advanced systems let you submit photos to in-store or delivery systems that transfer images to objects such as mugs, mouse pads, or T-shirts. One of the beautiful things about kiosk printing is that you only pay for what you print, so there's no risk if you explore. Remember, you can always cancel the process and start over if you get confused. Again, prices vary, but expect to pay around 24 to 50 cents for 4- x 6-inch pictures and anywhere from \$2.85 to \$7 or \$8 for 8- x 10-inch prints. Photo CDs (with all your images and their formatting changes) usually cost about \$2 or \$3.

Improve image quality. Digital kiosks provide basic editing functionality. Most have an Auto Enhance feature that adjusts color levels, contrast, and brightness to improve image quality. We found this tool useful in almost all cases. We suggest running Auto Enhance on every image you print. If you don't like the changes, just cancel them. Most kiosks also offer red-eye reduction, which lets you zoom in, select the eye area, and wipe out that creepy red tint.



Find a kiosk near you. As we mentioned earlier, there are many different types of kiosks. Kodak Picture Makers, Fujifilm Digital Photo Centers, and Sony Picture-Stations are the most recognizable in retail environments, though, so we'll focus on where to find them. You may find other models that work equally well or (more importantly) are in a location more convenient for you. To find a kiosk, just head over to your favorite all-purpose department store (Wal-Mart, Target, Kmart), drugstore (Walgreens, CVS, Eckerd), or camera store. Major grocery store chains and shopping malls are also installing kiosks in rapid progression. You'll probably find kiosks at any or all such locations. If you want to make sure, though, you can check the Web sites of kiosk manufacturers for a ZIP code search. For example, visit Kodak (www.kodak.com; click the Picture Maker menu option), Fujifilm (www.digitalcameradeveloping.com), or Sony (www.sony.com/picturestation). Click the Find A Kiosk or Store Locator link (exact phrases vary), enter your ZIP code, and browse installations near you. We sampled three ZIP codes (from the rural West Coast, a small city in the Midwest, and a major urban center in the Northeast) and never failed to find at least 10 kiosks in a 15-mile radius, from just those three major manufacturers. Walking around several towns and cities, we found plenty of kiosks from other manufacturers, as well.

Make Your Pictures

Photo kiosks take image files in a variety of formats. Some older machines only process Photo CDs, but most models accept a wide variety of storage media. Slots for CompactFlash, SD/MMC (Secure Digital/MultiMedia-Card), Memory Stick, Memory Stick PRO, xD-Picture, and SmartMedia cards; Picture CDs; and floppy diskettes are standard. We also found some infrared- and Bluetooth-enabled kiosks that let customers print pictures wirelessly from compatible camera phones. We were disappointed to find a lack of USB support, though, so don't plan on printing pictures from a USB keychain storage drive.

To begin the process, simply touch the screen. A menu asks what you'd like to do: make prints from single photos, print full-page layouts, or create a CD. Select your choice (stick with the basics—single photos—for starters). The system prompts you to insert your storage media, and then it scans for image files. When it finishes scanning (it can take several minutes, depending on the number and size of image files), you'll see a collection of thumbnail images on-screen. Select each picture you'd like to print by touching its thumbnail on the screen. You may need to scroll across or down to see all the images. For each image, select a quantity (normally by touching Up and Down arrows) and access editing options (you'll usually see several options for each picture). After selecting and editing your images, select the Finish or Print option. The system then downloads all your selections and edits to local memory and begins printing. Again, printing can take a few minutes

Lab vs. Kiosk Costs

You don't have to find a kiosk to get high-quality prints from your digital photos. You can buy a dye-sublimation photo printer (dye-sublimation is the process most kiosk printers use and is the best consumer-level technology for printing photos), connect it to your PC or camera, and print to your heart's content.

How do the costs compare? The amounts vary depending on your local cost for printing at a kiosk vs. the cost of your choice of home printer and paper. If you don't already have a capable PC and basic photo-printing software, add those costs to your home-printing investment, as well. Home-printing costs per print can be comparable to the wide range of per-print charges at a kiosk. However, many factors can affect this number: how large your prints are, how often you have to replace your ink, and what quality of paper you choose. In comparison, many chain stores such as Wal-mart or Walgreens charge on the lower end of the kiosk printing scale, usually between 24 and 29 cents per 4- x 6-inch print. And some online services, such as Snapfish (who charges 19 cents for a 4- x 6-inch print plus shipping and handling), charge even less. If you use these kiosk-printing or online services, the costs are comparable to printing at home, and you don't have the extra costs of buying the printer and replacing paper and ink consumables when you run low on supplies.

If printing at home, you are also limited to whatever editing options you have in your software (such as borders, text, and image editing), are responsible for your own repair and maintenance, and are committed to one technology regardless of on-going developments in kiosks. On the other hand, you won't have to go to the store to print your photos.

depending on the size of your files, the extent of your edits, and the number of prints you are making. Smaller prints usually take 30 seconds or less; larger prints can take up to five minutes. After you've reviewed your prints, remove your storage media, repeat with another set of files (if necessary), and pay for your prints. Some vendors require you to pick up your prints from an employee behind the counter, ensuring that you pay before you get your prints. Other kiosks accept credit card payments directly.

Evolving Technology

Digital photography has changed the way we take pictures. But this technology didn't satisfy many until they could hold and store physical representations of their memories in the same way as they could with film photography. That's what makes photography so powerful, after all. Someday, we'll all wonder how we got along without photo kiosks. 

BY GREGORY ANDERSON

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Indulge



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Kodak EasyShare DX7590: how-tos

Kodak EasyShare DX7590

\$499.95

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It takes discipline to own a Kodak EasyShare DX7590. You may need to charge the Li-Ion (lithium-ion) battery as soon as you open the box. Mount the camera in the dock and plug in the AC adapter if you bought the optional camera dock. If not, jettison the battery from the bottom of the camera and couple it to the external battery charger. You'll also be prompted to set the date and time when you first power on. You may even have to change a language setting by pressing the Menu button and toggling to Settings with the joystick on the back. Note that the OK button the users guide tells you to press is actually the joystick itself; you won't see OK on the camera.

Thankfully, that's all the self-restraint required—the rest is gravy. Power on and

crank the Mode dial to the Auto setting for point-and-shoot ease. For a little more control over apertures and shutter speeds, twist the Mode dial between familiar settings such as Portrait, Sports, Aperture Priority, Video, and SCN (Scene). The Close Up and Landscape modes are missing from the Mode dial; you can access them via a button on top of the camera, along with Bracketing and Burst modes. The SCN (Scene) Mode serves up 14 aperture/shutter speed/flash combinations primed for tricky lighting situations such as Beach, Snow, Backlight, Children, Fireworks, and others.

No Manual Focus

Kodak's autofocus (there is no manual focus option) snaps to items in the foreground of the scene, not necessarily the center. Lock in the focus by depressing the shutter halfway and moving the camera to reframe the

shot as you see fit. You can zoom (10X optical/30X digital) using the Wide/Tight rocker. By default, the camera will pause at the end of the optical zoom range and wait for you to reclick the rocker to continue with digital zoom. Helpfully, the zoom slider in the display turns red when you've zoomed in so far that ugly pixelation is likely in a 4- x 6-inch print. Ignore this warning if you don't plan to print the photos.

You'll probably want to buy an SD (Secure Digital) card to augment the DX7590's 32MB of onboard memory, which holds 43 pictures at 1.8MP (megapixel) resolution at the Standard quality setting (17 shots at 5MP). Format the card the first time you use it by selecting Format from the Setup menu and then choosing Memory Card (you can also format the internal memory if you're experiencing problems). Formatting erases all data,



including protected data, so don't do it unless you really mean it.

Tag Your Photos

A process called tagging makes it easy to share your photos. **Tagging** marks your pictures as destined for the printer or for particular email addresses. If you tag as you shoot, you won't have to sort through hundreds of photos later to find the shot you intended to email to Aunt Babs, cousin Dave, or *Good Housekeeping* magazine.

Set tags using the Share button. Press Share immediately after you take a picture, during the five second Quickview as the image lingers on your screen, and you'll see three menu options: Print, E-mail, or Favorites. (Video clips get the last two options only.) Select Print and you can specify the number of copies, the default being 1. To delete a Print Tag, set the number of copies to 0 (zero). With all of

your photos appropriately print-tagged, you can attach the camera to any **PictBridge-compatible printer**, which is a printer to which you can connect your digicam without going through a PC first. For \$199, you can also buy the Kodak EasyShare Printer Dock Plus, which prints 4- x 6-inch borderless pictures.

The E-mail button will call up a scrollable list of names (up to 32). When you first load your Kodak EasyShare software on your PC, you'll be prompted to enter a list of names and email addresses, which you'll then upload to the camera via USB. When you download your shots to your computer for storage, the tagged photos automatically attach to email. Your final choice, the Favorites button, is intended for special shots you think you may need to show off to friends. Favorite pictures stick around on the camera in a special folder accessible from the Mode dial. Though they're stored in low resolution, Favorites take up memory, so be selective.

If you press the Share button at any time other than right after a shot, you can review all of the shots currently in memory and you can change their tags. The menu also displays two additional options, Cancel Prints—which cancels all the print jobs across the board—and Print All.

You can also tag photos with Album information, making it easier to organize your collection, but the global Album setting behaves differently from the other tags. Because large blocks of consecutive pictures are likely to be destined for the same album (such as Alfonso's Soccer Game), marking each shot individually with an Album ID is unnecessarily cumbersome. Instead, turn on a particular Album (in the main menu) to tag all the photos you take until you turn it off again. ☎

BY RYAN TURNER

Sony Cyber-shot DSC-P150/LJ: how-tos

Sony Cyber-shot DSC-P150/LJ
\$449.95
www.sonystyle.com



Setup for the DSC-P150/LJ goes something like this: 1) Remove camera from packaging. 2) Congratulate self for getting stylish new toy. 3)

Mess with buttons to try to get sweet Carl Zeiss zoom lens to pop out. 4) Realize the battery is not yet installed. Following Step 4, you should dig around in the camera box for the tiny, rechargeable InfoLithium battery and insert it in the slot on the side of the camera. Be careful to orient it correctly. The edge with a pattern of yellow arrows on it points down, aligned with a tiny, well-camouflaged indicator arrow on the camera body. (The label on the battery will be upside down in this orientation—or at least ours was.) Charge the battery by plugging the included AC adapter into the camera through the little hinged door marked DC IN on the sliding panel that protects the battery

and memory card slots; plug the other end into a wall outlet. A full charge should take about three to 3½ hours and will buy you 300 to 500 pictures or 2½ to four hours of shooting photos under average conditions. Larger file sizes use up juice faster—as do particular features such as Monitoring Autofocus mode, in which the camera adjusts focus continuously (rather than just when you depress the shutter release halfway) in order to shorten the delay when you actually press the shutter release.

With your battery fully charged, unplug the AC adapter and get ready to play. The first time you power on, the camera will ask you to set the time and date; do this with the control pad arrows on the back of the camera (using the button in the center of the pad as the Enter key). Now crank the Mode dial to one of several modes, including Auto, M (Manual), P (Program Auto), and SCN (Scene). In each of these modes, pressing the Menu

button to the bottom right of the LCD screen calls up a list of features that you can navigate using the control pad. The SCN setting eases the strain on your brain by selecting combinations of all these features that are likely to match well with typical environments, including Beach, Snow, Twilight Portrait, Landscape, and High Speed Shutter (for sports).

At the end of your shoot, review your portfolio by moving the Mode dial to the Review button, shaped like a right-pointing arrowhead. Press the Index button (the W half of the Wide/Tight zoom rocker) to display nine thumbnail images at once so you can quickly scroll through the images using the control pad to find the one you want. In Review mode you can also connect the camera to a television with the included RCA cables and, of course, download the images to your PC (with the help of the included Picture Package software).



You can use the DSC-P150/LJ's Mode dial, control pad, and other buttons to record, view, and edit movies right on your camera.

Shoot & Edit Movies

Most CE-savvy consumers see a digicam with decent movie recording capability as must-have. The DSC-P150/LJ will probably satisfy, though some users may be turned off by the inability to zoom in or out while recording. To shoot, turn the Mode dial to Movie (the icon is shaped like a piece of film) and press the Image Size/Delete button (to the lower right of the control pad), which looks like a square pattern of dots next to a trash can, to select an image quality. Video, however, will fill up your Memory Stick very quickly, so use a lower-quality setting if you want to shoot for any length of time. On a 32MB Memory Stick, you can record more than 45 minutes at 160 x 112 pixels but only about three minutes at 640 x 480 (Standard Compression); the camera won't allow you to record at the highest-quality movie setting, 640 x 480 (Fine Compression) unless you have a 256MB or more Memory Stick.

You can watch your movies the same way you review still images: in the Review mode. Images and movies both appear in the portfolio, but the movies have a film-shaped movie icon in the upper-right corner so you can tell them apart. Play back the movie by pressing the Enter button in the center of the control pad. Use the rightmost and leftmost control pad buttons to fast-forward or rewind and use Enter to pause.

Odds are, you won't nail a perfect beginning, climax, and ending in every clip you shoot. Mercifully, Sony affords you the opportunity to trim some memory-hogging fat from your short films in-camera. Do this by pressing the Menu button while you're in Review mode and selecting the Divide icon (shaped like a pair of scissors). Press OK when prompted by Divide?, and the clip will start to play back. Press the Enter button at the point you want to cut. This pauses the film and displays four options: Exit (meaning

forget about this whole Divide thing), Cancel (forget about this particular Divide point), OK (confirm this as a Divide point), and single-frame advance or rewind (seen as two arrows pointing right [>>] or left [<<], respectively; this is in case you missed the Divide point by a few frames). Once you've selected OK by pressing Enter, one clip becomes two. Inconveniently, perhaps, you're left in clip A after dividing a movie into parts A and B. Press the right-pointing arrow on the control pad to advance into clip B if you want to further subdivide it. When you're finished cutting, scrap the unwanted portions (this may be easiest in Index view so you can see the thumbnail images) by pressing the Image Size/Delete button (still in Review mode), choosing Select, and then pressing Enter to tag unwanted clips as you scroll through them. Press Delete and then OK a final time to finish the job. 

BY RYAN TURNER

JVC GR-DZ7US MiniDV Camcorder: *how-tos*

JVC GR-DZ7US

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The JVC GR-DZ7US is a hand-held MiniDV (digital video) camera that offers an impressive array of features. Fortunately, it's easy to learn just a few of them to start making home movies right away. Start by unpacking the box and finding the rechargeable battery pack among the included accessories. Remove its plastic protective cover and snap it into place on the back of the camera below the viewfinder. Finding the power socket on the camera can be tricky. It's at the bottom of the left side, protected by a plastic door marked DC. Make sure the Mode switch (a slider with four positions: Off, Play, A for automatic recording, and M for manual recording) is in the Off position and then plug the camera's power cable in to charge the battery.

Once you've got power, turn on the camera. The Mode switch needs to be in

Manual mode to change most settings, so slide the switch to the M and open the LCD monitor on the side of the camera to expose another panel of buttons. Press the Menu button to display the camera's settings menu on the screen and then use the panel's arrow buttons to navigate down to the clock icon, which shows the Camera Display page. Press the Set button to access its settings and then use the arrow buttons to navigate down to Clock Adjust. Press the Set button to choose it and then use the arrow buttons to set the current time and date by pressing Up and Down to choose the numbers and Set to move among the month, day, hours, minutes, and seconds. Exit by pressing Set once to return to the settings menu and again if you want to exit the settings menu. Plenty of other useful settings such as Exposure Control and Zoom Level are tucked away in this menu, so if you're not in a rush to record an impending school play, take some time to explore.

To make your first recording, set the camera to Automatic mode and set the Video/Memory switch on top of the unit to Video. Lay the camera on its LCD side and push the Open/Eject slider while pulling the cassette holder cover open. The holder will extend automatically, letting you insert a MiniDV tape. Close the cover and open the LCD. The Record button sits conveniently under your right thumb while you hold the camera. Press it to start recording and then again when you want to stop. If you'd rather look through the eyepiece than at the LCD, close the screen and pull the eyepiece away from the camera to activate it. Don't forget to use the zoom lever on top of the camera to magnify distant subjects you want to see in more detail.

Once you've recorded your first movie, you can play it on a TV. Use the included S/AV/Editing cable that ends in five plugs: one yellow for video, one red and one white for audio, and two black (one for

The JVC GR-DZ7 can create an impressive array of video effects if you're adventurous enough to explore its menu functions.



S-Video and one for editing). Connect the yellow, red, and white A/V plugs to your TV's A/V inputs of the same colors and the other end of the connector to the port marked S/AV next to the camera's power jack. Move the Mode switch to Play mode. Now you can use the arrow buttons hidden behind the LCD screen (that you first used to set the date and time) to play, pause, fast-forward, and rewind the tape. You can use the included remote to control playback if you prefer to watch the tape from the comforts of your couch.

Special Effects

Now that you've mastered basic recording and playback, you can learn to record with special effects. These tools take a few seconds to set up but can make your videos look more professional and be more fun to watch. All of the settings can be found in the menu system, so set the Mode switch set to M for Manual.

The Program AE menu lets you adjust the shutter speed of the camera to best fit lighting and action conditions. Navigate to the Sports, Snow, Spotlight, or Twilight setting to make shooting better footage in these situations easier. The Sports setting creates sharp, accurate images of fast-moving objects that will look good if you replay them in slow motion later. The Snow setting keeps your subjects from looking too dark on a white background. If your scene is under strong direct lighting and you'd like to soften the shadows, select the Spotlight setting. Or, if your evening video looks dim and grainy, select the Twilight setting to have the camera automatically adjust its white balance, a setting that compensates for the color tint and brightness of the lighting, to produce a more natural picture.

The last four settings of the menu are fun because instead of making your footage look more natural, they apply style to it.

If you choose Sepia, the camera gives your video an antique-looking tint. Choose B/W Monotone if you'd like to mimic old black-and-white films or Classic Film to imitate the flicker of an old projector. If those aren't dramatic enough for you, you can choose Strobe to produce flashing, jerky, disconnected music video footage.

The camera also allows you to add transitions between your shots to help your movie flow from scene to scene more smoothly. To set up the camera to add transitions, choose any of the options in the Wipe/Fader menu. For example, the Fader-Black option creates fades to and from a black screen, and Wipe-Window slides your video across the frame. With these options set, the camera will use these transitions whenever you start or stop recording. 

BY JOSEPH S. BELL

tips

Digital Video, After Shooting

1

Fire In The Wire

FireWire (also known as IEEE 1394 and i.Link) ports and cables are currently the handiest means for moving digital video from your camera to a computer for editing and/or storage. Apple computers have included FireWire ports as standard equipment for years, and many PCs now have them, as well. But if your computer lacks suitable ports, you can easily add them by installing a FireWire adapter card that fits into one of your PC's PCI (Peripheral Component Interconnect) expansion slots. For the easiest installation experience, buy a card that offers OHCI (Open Host Controller Interface) compatibility; this means you won't have to install driver software to get your card working with Windows.

2

Monitor Your Progress

If you're shooting video for an ongoing project, don't wait until you've finished before importing your footage into the computer. Instead, do it at the end of each day. This lets you back up your footage and gives you the chance to review your work, scrutinizing it for any needed improvements in camera handling, audio quality, and so on.

3

Get Organized

When it's time to edit your footage, you can never be too organized. After you've imported the footage into your computer's video editor, it's time to break the video down into manageable clips—shots, scenes, etc. Some programs do this automatically for you, but if yours doesn't (or if it isn't done to your liking), you should use a timeline or storyboard interface, which video-editing programs generally offer, to arrange individual clips in your desired order. Next, store clips you are not sure you'll use out of the way, but don't trash them yet. Give the clips descriptive names in case you want to use them later. With preparation, the editing process should continue smoothly, letting you concentrate on creativity.

4

Add A Specialized Controller

Editing video with a mouse can get tedious, so you may want to invest in a consumer version of what professionals use: a jog/shuttle wheel, which will scroll through video frames more efficiently. Bella's DV Keyboard 4100 (\$129.95; www.bella-usa.com) supplements normal keyboard features with a jog/shuttle controller and two programmable specialty keys. Griffin's PowerMate (\$45; www.griffintechnology.com) is a chunky desktop knob that you can use as a jog/shuttle controller; it connects via USB cable. Both devices are compatible with PCs and Macs and work with most popular editing programs.

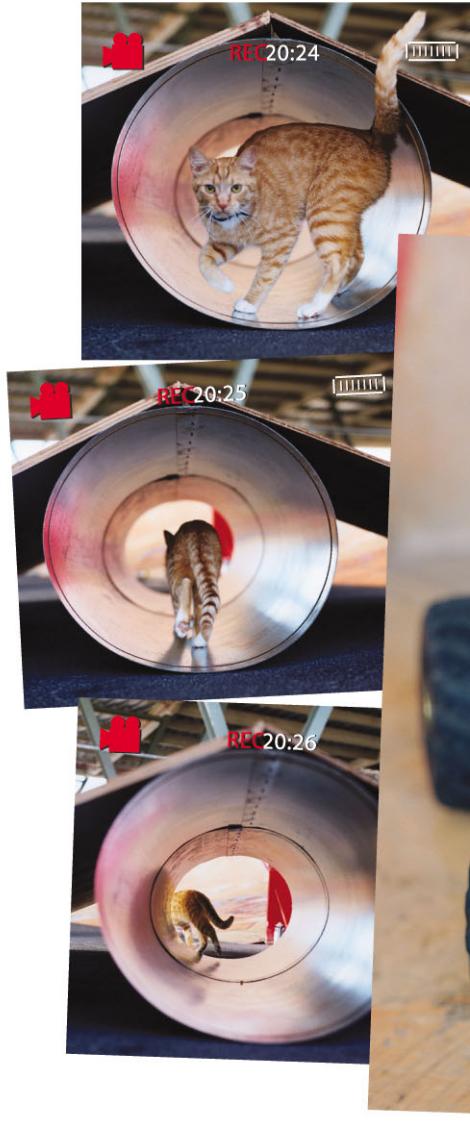
5

Be Your Own Blockbuster

For sharing digital video, the most direct method is to **burn** (or copy your video to) DVDs or Video CDs to give to family and friends. This isn't the same as burning data backup discs, however. A data disc stores files for later access on your computer. A video disc is formatted so it will work in DVD players. So, for players to read discs, you need to create them in a program that allows DVD/Video CD authoring. Several such programs are available, including Roxio's Easy Media Creator 7 and Toast Titanium 6 (for PC and Macs, respectively; each \$99.95; www.roxio.com).



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If you want a portable DVD player, you can use your notebook PC. But that's overkill to simply play DVDs in the car or on the plane, and hooking notebooks to regular TVs can be an adventure. Audiovox's 7" DVD In A Bag gives you all you need for a decent price and is easy to set up. Use the included harness to sling the DVD In A Bag over the car seat so your kids can watch what they want and stop asking if you're there yet. It also comes with component jacks so when you get where you're going, you can plug it into a TV and watch movies on a screen larger than the DVD In A Bag's 7-inch LCD. And it all packs into a well-designed carrying case (the Bag), which has enough room for a bunch of discs, as well.

The VBP700 draws power from a wall receptacle, from your car's cigarette lighter,

or from the included battery. The NiMH (nickel-metal hydride) rechargeable battery powers the player for about three hours (roughly the same as a good notebook battery). Its low degradation feature means there's no need to let the battery run down. To charge the battery, plug one end of the included cable into the wall socket and the other into the battery module; the roughly 7.5-inch x 5.5-inch platter is included in the package.

Once charged, attach the battery by lining up the tabs with the slots on the bottom of the player and then sliding the platter into the slots until it clicks. Plug the connector cable emerging from the platter into the DC port at the side of the player and slide the power button to On. Insert a DVD or CD, press the Play button on the player or on the slim remote control unit, and you're off.

Playing DVDs in the car is one of the VBP700's special treats. The unit includes

an adapter cable that runs from the base unit into the car's cigarette lighter, after which it's simply a matter of turning on the unit, inserting a DVD, and watching away. Of course, this assumes you want the player held in someone's lap or placed on the seat, hardly the best arrangement if your viewers are young kids (or adults holding frothy cappuccinos).

For that reason, Audiovox includes a harness that lets you suspend the VBP700 from the back of the front seat, one of the front seats, or between the two bucket seats, and your kids can watch without touching. If they fall asleep, they won't drop or roll over onto the player.

Playing MP3s & JPEG Files

Make no mistake; the VBP700 does its job as a DVD player just fine. The screen is clear and bright, it shows widescreen movies perfectly, and the sound is surprisingly good for a unit this small (although



the volume could definitely use a boost). In fact, this device is so well designed that it has two headphone jacks, eliminating the hassle of having to buy a splitter. The control pads on the device and the remote control unit let you skip from scene to scene and do everything else you'd want to do with a DVD movie.

But just as usefully, the VBP700 doubles as an audio CD player and a viewer for JPEG (Joint Photographic Experts Group) graphics files. In fact, it gets even better: The player reads rewriteable CDs (CD-RW), as well. So you can keep adding MP3 files to your music disc, or JPEG files to your picture disc, or replacing the files with new ones, in order to get the music collection or photo album you want.

To use your VBP700 for either of these purposes, create the CD on your PC or Mac. Using your CD software, burn whatever JPEG graphics files and/or MP3 music files you want to the CD. When

you burn an MP3 CD, your software may ask if you want to create a music or data CD; as counterintuitive as it sounds, do not burn a music CD. A standard music CD will play, but it won't let you store the hundreds of files a data CD will. For graphics files, make sure they're all in JPEG format (GIF [Graphics Exchange Format] files, BMP [bitmapped] files, and other types don't display at all).

Be sure the files have clear, concise names because the VBP700's screen displays only 14 characters of the name in its menu. This is especially true for MP3 files; JPEGs display a thumbnail of the picture, making it easier to find what you want.

With the CD burned, open the player's disc cover (press the Open button) and press the CD into place. Turn on the player if it isn't on already. In a few seconds, the screen shows a two-pane window, with the file name in the left pane and, in the case of JPEG files, a

thumbnail in the right pane. Click the down-arrow either on the remote or on the left control pad on the player until you reach the file you want to view or play. Press the OK button (left control pad) or the Play button (right control pad), or the Enter button on the remote to play the song or view a full-screen version of the picture.

You'll see standard buttons for CD music playback: Play, Pause, Stop, Fast Forward, Rewind, Next Track, and Previous Track (the same buttons control DVD playback). For pictures, the VBP700 automatically starts a slideshow, and you can skip ahead to the next picture or back to the previous picture manually. By pressing the Setup button, you can adjust the display from widescreen to normal screen, a necessary procedure if you don't want your pictures to spread horizontally to fill the entire screen. 

BY NEIL RANDALL

Remote Isolation

One Remote Control Is Better Than A Drawerful



America has had an undying love for wireless remote controls since the first one, Zenith's Flashmatic, made its debut in 1955. Nowadays it seems like everything comes with its own remote, including stereos, TVs, computers, and even home lighting and climate control equipment. If you're splitting time among a mountain of remotes, you may want to consider consolidating the functions of all those units into one. But how do you know which remote control will keep your eyes from wandering?

It's important to grab a universal remote that has as many or more device options than you have devices to control with it. Most home entertainment systems have a TV, DVD player, VCR, and receiver or surround-sound setup. That's four devices right there. If you throw in extras such as a CD changer and remote-controlled lighting, it isn't difficult to find six or more devices that you'll want your universal remote to control. But, of course, there's more to choosing a good remote than simply getting one that controls lots of gadgets.

Make It Work

There are two main types of universal remotes on the market right now: preprogrammed and learning.



The Flashmatic from Zenith was the first wireless remote control, debuting in 1955.

Preprogrammed. Most preprogrammed universal remotes can control anywhere from three to 12 devices. Along with a satisfactory number of device options, they have also gained popularity because they are a little cheaper than their counterparts. These remotes come with lists of control codes for controlling devices from nearly all the major brands of TVs, VCRs, DVD players, cable boxes, and other A/V devices. All you have to do is follow the included instructions and enter the appropriate codes for your devices, and you're all set. Some preprogrammed remotes will have a scan option where the remote will go through all the codes until it finds the one that matches the device you're trying to control. Luckily, even as manufacturers release new products, their programming codes remain the same.

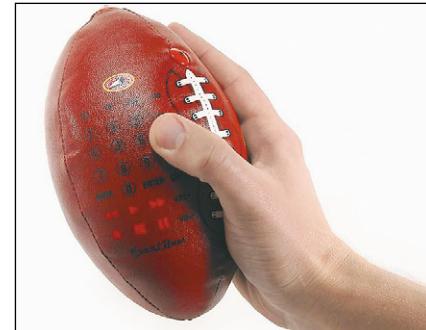
There are, however, a few drawbacks to buying a preprogrammed remote. For instance, although there are a few exceptions, most preprogrammed remotes will operate only the most basic functions of your devices, such as

turning them on and off, changing channels, adjusting the volume, and so on. But your universal remote might not give you the option of using such features as picture-in-picture, input selection, or changing setup properties. Also, you may find it difficult to find a preprogrammed remote that controls other devices besides those included in a home theater. If you want to have control of your home's lighting levels or drapes at your fingertips, you'll want to stay away from this type of remote.

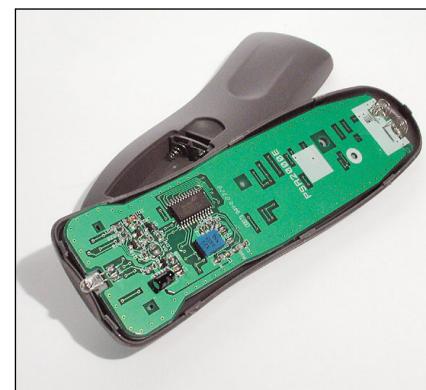
Learning. Preprogrammed remotes have been around awhile and serve as cheap replacements for misplaced remotes, but an increasing number of people are forgoing the savings of a few dollars in order to buy learning remotes instead. Some of these remotes can control upwards of 20 devices. Instead of requiring you to enter a numerical code to work with your equipment, a learning remote learns through infrared signals from your old remote. Once you set your remote to a programming mode, you press the button you want to assign a function to and then press the desired button on the teaching remote. This gives you the flexibility of leaving unused functions off your new remote.

In addition, some universal remotes let you combine multiple functions into single buttons by programming command sequences called macros. For instance, you can program one button to turn on your TV, A/V receiver, and DVD player. And because many similarly equipped remotes have little bits of onboard memory to store those commands until you change or delete them, you won't have to worry about losing them when your current set of batteries runs dry and you have to replace them.

Of course, there are caveats to consider before buying a learning remote. For one thing, you'll likely need to exercise some patience during initial setup, which can take longer than simply entering a



This Football Universal TV Remote (\$19.99; www.smarthome.com) can control up to four A/V devices.



The inside of your remote might look something like this.



Griffin Technology's Total Remote v 2.2 software uses the audio hardware of your PDA to control your A/V devices.

manufacturer/model code in a preprogrammed model. Also, a learning remote's usability is limited in that it requires you to have a teacher remote before it will work. This may be a problem if the remote you are replacing was recently lost or possibly mutilated by man's best friend.

Fun 'N Games

Sure you want a remote that will get the job done, but don't you also want one that looks great? That shouldn't be a problem with the current lineup of stylish, backlit handheld gadgets. You

will likely even be able to find a remote that reflects your favorite hobby or personality quirk.

Novelty remotes have become a huge industry; you can get remotes fashioned after your favorite cartoon character, sports team, and more. But keep in mind that although such remotes can be comical extensions of your seity, they are generally on the lower end of the spectrum when it comes to universal performance; they're usually preprogrammed units that are only capable of controlling the basic functions of four or five devices.

Keep your eyes peeled for a device that can handle the electronic load you're going to throw at it. If you have a huge home theater with complicated remotes, go with a learning universal so you can still perform all of the functions with a lot less electronic clutter on your coffee table. If you have a simple setup with just a few devices, save yourself time and money by going with an appropriate preprogrammed universal remote. Hopefully, you can find a remote that will keep you happy for the long haul. 

BY SAM EVANS

Remote Possibilities

PDAs have quickly become a staple for just about anyone who is often on the go and has a lot to remember. You can use them to manage your workday, surf the Web, send email, and much more. With the right software, you can also use many PDAs as universal remotes, as most of them have the infrared signal capability needed to communicate with other electronics.

One example of this software is NoviiRemote Deluxe (\$34.99; www.novii.tv). This program lets you create your own interface for common A/V device types, including TVs, cable/satellite receivers, DVD/CD players, VCRs, A/V receivers, and so on. The software also lets you control devices in multiple rooms. If, for instance, you're done watching television in your living room and are ready to catch a late night talk show or some news as you doze off in your bedroom, you can control both TVs with your PDA.

The main problem with the PDA option is range, as PDA infrared signals rarely travel farther than about 10 feet. However, many new products have emerged to solve this problem, such as Griffin Technology's Total Remote version 2.2 (\$24.99; www.griffintechnology.com), a package that includes a transmitter module that uses the audio hardware of your PDA for long-distance signaling. This can give you a control range of nearly 100 feet. (Just in case.)

You also need to consider system compatibility when choosing remote software; you'll obviously need to make sure the program you buy includes support for your PDA's operating system (usually Windows Mobile or Palm OS). It's also important to consider how available you'll want your PDA to be to others in the household if you frequently use it for other things, as well.



The RCA RCU1010RF (\$159.95; www.rca.com) uses macros to let you perform tasks on multiple devices with the push of a button.

tips

5 Tips On . . . MP3

1

Stay On Track

The order of your MP3 tracks may differ from the order on your music CD because PCs interpret disc types differently. Music CDs use the Red Book (CD-DA) audio format, which keeps the track names in order. MP3 discs use the CD-ROM data disc format: File names sort in alphabetical order. To keep your MP3 tunes in order, burn the disc again using prefixes that will list tunes in the desired order. If you burn three songs, Windows shows them in alpha order (Fri.MP3, Thurs.MP3, and Wed.MP3). Rename the files with prefixes such as 01_Wed.MP3, 02_Thurs .MP3, and 03_Fri.MP3 to keep them in order.

2

Consistent Volume From Song To Song

You can create MP3 files using a range of encoders and characteristics, which results in varying volumes among song files. **Normalize** (even the volume from song to song) your MP3 files to achieve a uniform volume and smoother listening experience. Many encoders (such as MusicMatch Jukebox) support normalization as an Advanced option that you may select as you **rip** (extract a song from an audio CD) the song. You may normalize existing MP3 files using third-party tools, such as Ease MP3 WAV Converter (\$19.95; www.audiotool.net/mp3converter), though the process is a bit more involved.

3

Check Your CD Drive For DAE

Very fast ripping does not always yield the best results. Artifacts (noise and other anomalies that degrade audio recordings), such as pops and clicks, can ruin a song. It's important to rip from a CD or DVD drive that supports DAE (Digital Audio Extraction). The DAE feature is designed specifically to copy digital audio data from audio CDs, ensuring top quality sound when ripping your favorite tunes. Most newer CD and DVD drives support DAE, but check the specifications for your own drive just to be sure. DAE support isn't obvious, but you can often check the drive through your ripping application. For example, under Windows Media Player 10, right-click the Rip tab, select Tools and then Options, and select the Devices tab. Highlight the drive you intend to rip from and click Properties. If the Digital radio button is available (or selected) under the Rip area, your drive supports DAE. If not, check your other CD or DVD drives to locate one with a Digital rip capability, and rip from that drive instead if possible.

4

Rip The Best Sound Quality

It's common for pops and clicks to ruin a poorly ripped recording. If you don't get good results from your drive, try ripping from a different drive or recording at a higher quality. For example, Windows Media Player 9 can rip CD tracks to WMA (Windows Media Audio) files natively; it can rip MP3 files if you have a plug-in installed such as CyberLink's MP3 Power Encoder, InterVideo's MP3 Xpack, or Sonic's CinePlayer MP3 Creation Pack (just click the Learn More About MP3 Formats hyperlink on the Copy Music page for a Web site with suitable plug-ins). Windows Media Player 10 includes native MP3 support, so you don't need to bother with third-party plug-ins. For example, with WMP running, click Tools and Options and select the Copy Music (or Rip Music) tab. Increase the Audio Quality slider and see how the required space increases. Apply your changes and rip the troublesome track again. It should sound better.

5

Manage ID3 Tags

MP3 files contain ID3 data, such as artist, and title, track, and MP3 devices display ID3 data in the playlist. However, ID3 data isn't universal; not every tune contains complete (or accurate) ID3 info. When you browse a large MP3 collection, disparate ID3 tags make your collection messy. To keep your MP3 collection organized, you need an ID3 tagger utility. Comprehensive MP3 software, such as MusicMatch Jukebox, typically includes an ID3 tag editor that lets you add, remove, or edit any of the ID3 information. Otherwise, third-party ID3 tagging utilities are available from many sources, such as the free-ware at Team MP3 at www.team-mp3.com/mp3/mp3_id3_tag_editors.htm.



BY STEPHEN J. BIGELOW

BRILLIANT • BETTER • **BENWIN**

ecco 5.1 DX Wireless Remote Speaker System

If the style doesn't win you over,
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Add something special to your digital life with a Benwin 5.1 Hi Fi Wireless Remote Speaker System featuring instant digital surround sound.

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First Glimpse Advertising Section

This special advertising section presents the latest consumer electronics products now coming on the market. Browse through these First Glimpse pages to learn about new products before they appear on your local store shelves.

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Samsung HPR8072 80-Inch (World's

The Samsung 80-inch HPR8072 is the largest consumer plasma HDTV in the market, offering a full 1,920 x 1,080 progressive scanning resolution for outstanding image clarity.

Features include:

- The world's largest consumer TV (80-inch plasma) with 68.7 billion displayable colors

- World's highest resolution of 1,920 x 1,080 (6.2 million pixels)
- Full 1080 progressive-scan (1080p) processing—currently the highest level of HDTV support
- Includes Samsung's proprietary latest generation of DNIE (Digital Natural Image engine) picture-enhancing technology
- High brightness (1,500cd/m²)



Samsung HPR8072 80-Inch Widescreen Plasma HDTV

Available May 2005; MSRP TBD

www.samsungusa.com

Widescreen Plasma HDTV Largest)

- High contrast ratio (5,000:1)
- 68.7 billion displayable colors (12-bit processing)
- Modern premium design (high-gloss bezel)
- Custom matching tall-boy speakers
- Custom matching specialized component rack
- Samsung's patented and proprietary latest generation DNIe (Digital Natural Image engine) chip for enhanced picture quality

- Samsung's patented Anynet chip for a home networking solution: A single remote control can operate multiple components

CES 2005 INNOVATIONS HONOREE



Samsung TXR3079WH DynaFlat TV

Available March 2005; MSRP \$1,299

www.samsungusa.com



Samsung TXR3079WH 30-Inch DynaFlat HDTV

The first SlimFit HDTV, the TXR3079WH, is a 30-inch widescreen CRT set with integrated HDTV that's only 15.5 inches deep.

Samsung's new SlimFit HDTV features a revolutionary slim-profile design that creates a new category

in the flat-tube TV market. At two-thirds the depth of a typical, bulky tube TV, a SlimFit 30-inch widescreen HD set from Samsung is only about 2 inches deeper than a 32-inch LCD on a stand (in total depth).

Typical 30-inch widescreen sets are about 24 inches deep. The new Samsung SlimFit HDTV is roughly 15.5 inches deep. Essentially the same footprint is



required for a new SlimFit Samsung TV as is used for an LCD of the same screen size. This means you can use a SlimFit TV in new locations around the house and with smaller, less obtrusive cabinets, tabletops, and stands.

Most importantly, SlimFit TVs cost only slightly higher than conventional flat picture tube HDTV sets

with similar features and half as much as comparable LCD TVs.

CES 2005 INNOVATIONS HONOREE



Samsung LN-R460D

Available March 2005;

MSRP \$12,999

www.samsungusa.com



Samsung LN-R460D 46-inch Widescreen LCD HDTV

The Samsung LNR460D is the first LCD HDTV to adopt the revolutionary LED backlight unit technology. This allows the LNR460D to offer 105% of the NTSC color gamut, 3.2 billion colors, and a full 1920 x 1080p (6.2 million pixels) resolution.

Features include:

- The world's first LCD HDTV with LED (light-emitting diode) back light unit

- Increased color gamut equals 105% of NTSC (the average LCD TV is 72% of NTSC)
- Longest light unit lifetime: 100,000 hours (45 years at 6 hours a day)
- Highest resolution of 1920 X 1080 (6.2 million pixels); that's the highest level of HDTV support
- Samsung's proprietary latest generation of DNIE (Digital Natural Image engine) picture enhancing technology
- Large size and high performance for high-end A/V enthusiasts



- High Brightness: 500cd/2
- High Contrast Ratio: Greater than 1,000:1
- Fast response time-less than 12ms-for smooth video without blurring
- Wide viewing angle: 170H / 170V
- Modern design with acrylic material bezel
- Samsung-patented "Anynet" chip; this home networking solution lets you use a single remote control to operate multiple components

Use the LN-R460D as your main TV in your living room or for your home theater. This versatile LCD HDTV is also appropriate for business applications in airports, hotels, train stations, and other locations where high resolution is required.

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ZonePlayer

MSRP \$499

www.sonos.com

The Sonos™ Digital Music System

Sonos™ is the first and only multiroom digital music system with a wireless, full-color LCD screen controller that lets you play all your music from anywhere in your home and control it all from the palm of your hand. Sonos™ liberates the digital music that's stored on your PC, Mac, or Network Attached Storage box so you can listen to it in every room in your house—from the bedroom to the backyard. And you don't need to have a PC in every room, a music server, or a wireless network to do it. Just place up to 32 Sonos™ ZonePlayers and speakers in the rooms of your choice and grab hold of your wireless Sonos™ Controller to access all your digital music, no matter where it's stored.

Sonos™ ZonePlayer

It distributes. It plays. It amplifies. For great-sounding music, anywhere you choose.

Features:

Multiroom digital music: ZonePlayers can go anywhere and connect wirelessly when a wired Ethernet connection is not available. Play the same song in different rooms or different songs in different rooms—simultaneously.

Superior audio quality: Built-in 50W/channel amplifier powers large or small speakers, with component quality sound.



Controller

MSRP \$399

www.sonos.com

Easy setup: Automatic wired or wireless setup. Add new ZonePlayers with one press of a button.

Support for multiple music sources: Plays music files, Internet radio, and external audio sources, such as CD players or portable MP3 players.

Sonos™ Controller (CR100)

Gives you instant, wireless access to all your music and all your ZonePlayers, from anywhere. It's like having a giant jukebox at your fingertips.

Features:

Wireless, handheld control: Control everything from volume to music selection in any room from anywhere. No more running back and forth to your PC to change CDs or playlists.

Full-color LCD screen: Displays bright, clear choices and information, including album art, if available.

Scroll wheel selector: Makes it easy to scroll through large music collections and make selections.



Pioneer AVIC-N2 In-Dash Multimedia AV Navigation System
MSRP \$2,200
www.pioneer-electronics.com



Pioneer AVIC-N2 In-Dash Multimedia AV Navigation System

With traffic delays, road congestion, and street closures, drivers need all the help they can get to arrive at their destinations quickly and easily. With the AVIC-N2, Pioneer's next generation multifunction navigation system, commuters don't have to worry when they get behind the wheel. The system is compatible with XM NavTraffic, a subscription service that offers satellite-based traffic information alerting drivers of traffic incidents and offering them alternate routes to bypass frustrating commuting conditions.

Unlike other navigation systems, the AVIC-N2 graphically displays in-depth traffic and road flow conditions for 20 major metropolitan cities across the nation. Whether commuting to work or taking a cross-country road trip, drivers have access to nearly

11 million points of interest, putting them in total control of their routes and destinations.

To further ease the difficulties of driving, the AVIC-N2 was designed to be a multitasking information and entertainment system that keeps drivers en route while simultaneously occupying passengers' attention. Offering playback of most DVDs, CDs, and MP3 CDs, and with its AM/FM/XM Satellite Radio capabilities, the AVIC-N2 is the next generation in commuting technology.

The Pioneer AVIC-N2 In-Dash Multimedia AV Navigation receiver can be purchased at Pioneer retailers across the nation.

Pioneer *sound.vision.soul*



first glimpse

Advertisement

Samsung LNR409D
Available May 2005; MSRP \$5,499
www.samsungusa.com

Samsung LNR409D 40-inch Widescreen LCD HDTV With FFL

The LNR409D is a 40-inch widescreen LCD HDTV that uses the world's first FFL (Flat Fluorescent Lamp). The FFL improves picture performance with 3.2 billion gradations of colors while reducing production cost significantly to make LCD TVs more affordable.

Features include:

- New FFL technology, which further reinforces Samsung's technology leadership
- 40-inch S-PVA (Super Pattern Vertical Alignment) panel manufactured on the world's first Generation 7 LCD fabrication line using advanced production techniques
- 3.2 billion gradations of color, widest among current LCD TVs
- 3,000:1 contrast ratio (with "Dynamic Contrast" mode ON), highest among current LCD TVs in the market
- World's first FFL BLU (Back Light Unit) to enhance brightness and light uniformity

- Samsung's patented and proprietary latest generation DNIe (Digital Natural Image engine) chip for enhanced picture quality
- Samsung patented "Anynet" chip for a home networking solution, which provides single remote control operation of multiple components
- Large size, yet relatively affordable flat panel TV for high-end home theater enthusiasts
- Premium "all-in-one" widescreen LCD TV with built-in ATSC digital TV tuner and POD cable card slot—no separate media box

Use the LNR409D as your main TV in the living room or as a second TV in a bedroom or study.

CES 2005 INNOVATIONS HONOREE



Samsung HPR5072 50-Inch Widescreen

Plasma HDTV

Available April 2005; MSRP \$6,999

www.samsungusa.com



Samsung HPR5072 50-Inch Widescreen Plasma HDTV

The Samsung 50-inch HPR5072 represents the next generation of state-of-the-art plasma picture performance with 68.7 billion displayable colors and a contrast ratio of 10,000:1, wrapped in a stylish design.

Features include:

- The world's best picture quality
- Contrast ratio: 10,000:1
- Brightness: 1,100 cd/m²
- 68.7 billion displayable colors (12-bit processing)
- Panel life (to ½ brightness): 60,000 hours—27 years at 6 hours a day
- Viewing angle: Over 175 degrees horizontal
- Stylish Design

- Edge-to-edge EMI glass filter for no bezel and floating-glass look
- Includes Samsung's proprietary latest generation of DNIE (Digital Natural Image engine) picture enhancing technology
- High-performance TV for high-end home theater enthusiasts
- Main TV for living room or A/V specialty room

CES 2005 INNOVATIONS HONOREE





Pioneer PDP-5050HD
MSRP \$7,500
www.pioneerpurevision.com

Pioneer PureVision Plasma TVs

With Pioneer's new PureVision plasma televisions, consumers get an experience that goes far beyond standard TV. Offering some of the sharpest, brightest, and most color-accurate images, these new plasma TVs make viewers feel like they are in the middle of the action taking place on-screen, not just watching it.

The PDP-4350HD (43-inch) and PDP-5050HD (50-inch) TVs include a number of Pioneer's proprietary PureVision technologies to ensure viewers a superior, high-definition picture. A key feature producing this breathtaking imagery is the First Surface Pure Color Filter. A technology that Pioneer developed, the filter gives new meaning to the term "reality TV." Whether it's watching a favorite TV show, enjoying an exciting

sporting event, or reminiscing with home movies, consumers view the most brilliant lifelike images possible on any plasma screen today. Viewing these incredible pictures on-screen will have consumers wanting one in every room. With that in mind, Pioneer developed the TVs for quick and easy installation in any home. Just a few quick cable connections between the plasma and other home theater products and customers can get the final piece to a complete home theater system.

The Pioneer PureVision PDP-4350HD 43-inch Plasma Television and PDP-5050HD 50-inch Plasma Television have suggested retail prices of \$5,500 and \$7,500, respectively. Both products will be available this spring.

Pioneer *sound.vision.soul*



Samsung YH-925 20GB HDD Jukebox

Available January 2005; MSRP \$349.99

www.samsungusa.com

Samsung YH-925 20GB HDD Jukebox

The YH-925 Digital Audio Player is designed for digital audio and multimedia enthusiasts, offering multiformat digital audio playback and MPEG/JPEG support for viewing pictures on its 1.8-inch TFT LCD display.

The super-slim YH-925 is the perfect portable HDD device with 20GB of hard drive storage capable of holding more than 6,000 songs. The YH-925 is one of the first players to be fully compliant with Microsoft Windows Media Player 10's digital rights management technology; the unit also supports WMA, MP3, Secure WMA, Janus Upgradeable, and Ogg Vorbis files.

The unit includes a built-in FM tuner and integrated voice recorder. You can record, encode, and store MP3s or uncompressed WAV files from a variety of sources to the YH-925's hard drive—no PC required!

The YH-925 supports album art within the downloaded metadata to further connect fans to their favorite music.

CES 2005 INNOVATIONS HONOREE



**Samsung YP-T7**

Available January 2005; MSRP TBD

www.samsungusa.com

Samsung YP-T7 Digital Audio Player

The sleek, compact YP-T7 holds up to 600 hours of your favorite songs. Plus, you can transfer and store digital pictures (JPEG files) and view them on the vivid CSTN color LCD display.

The YP-T7 Digital Audio Player is the perfect portable flash device with 512/1GB of memory storage, so it doubles as a standard hard drive. The YP-T7 is one of the first players to meet the standards for MS Windows Media Player 10 and integrates with all MS support subscription DRM technologies.

The unit plays MP3, WMA, Secure WMA, Ogg Vorbis, and ASF files. There's even a special clock function, which includes an alarm and programmed FM receiver.

The integrated voice recorder allows you to digitally encode, record, and store MP3s or uncompressed WAV files from a variety of sources to the YP-T7's hard drive—no PC required.

Both the 512MB and 1GB models feature a Real Time Equalizer display.

CES 2005 INNOVATIONS HONOREEThe Samsung logo is located in a blue oval. The word "SAMSUNG" is written in a bold, white, sans-serif font, with a small "A" preceding the "S".



Samsung DVD-HD950 DVD Player

Available May 2005; MSRP \$249

www.samsungusa.com

Samsung DVD-HD950 High-Definition Conversion DVD Player

Samsung's DVD-HD950 delivers brilliant video and audio performance at an unbelievable price.

The DVD-HD950 combines top picture quality with terrific multichannel high-resolution audio. Owners of newer high-definition TVs will appreciate its ability to upconvert DVD video to better take advantage of their TVs' HD capabilities.

The picture quality is noticeably sharper than progressive-scan DVD (480p). The player's built-in scaler lets you select from three upconverted resolution options (720p, 768p, or 1080i) for the best-looking picture with more TV types (TV must have a DVI or HDMI input).

For tube TVs, 1080i generally works best, while 720p is the perfect match for DLP big-screens. The 768p setting

matches the native resolution of many HD-ready, flat-panel plasma and LCD TVs.

Features include:

- Upconversion (480p/720p/768p/1080i)
- HDMI/DVI Compatible
- DVD-Audio/SACD Playback
- 6ch Out
- LCD (White)
- 2 Cables: (HDMI-HDMI) and (HDMI-DVI)

CES 2005 INNOVATIONS HONOREE





Samsung SC-X105L

Available April 2005

MSRP \$649.99

www.samsungusa.com

Samsung SC-X105L

Samsung's SC-X105L is a digital camcorder with an additional lens module for extreme outdoor sports activities!

Samsung opens the door to a world of new possibilities with its extreme Sports Cam designed for outdoor adventurers and enthusiasts. The SC-X105L innovative tapeless digital camcorder is water-resistant and has an additional lens module for extreme outdoor sports activities (hook it to a helmet to capture skydiving, for example). Its 512MB built-in memory and Memory Stick/Memory Stick Pro Slot provides easy and convenient storage and PC downloads.

Key features include:

- Durable rubberized body (pocket size, solid look)
- Extra sports camera module for hands-free shooting
- 10X optical zoom, 680K Movie Optimized CCD
- Still image sizes: 640 x 480, 800 x 600
- 2-inch 211K pixel T.R. LCD
- Electric Image Stabilizer
- Built-in memory (512MB) records MPEG 4 video
- MS/MS Pro slot





Samsung HT-DS1100

Available July 2005

MSRP \$1,799.99

www.samsungusa.com

Samsung HT-DS1100 Home Theater In A Box

Beautiful design and state-of-the-art technology combine to make this 5.1-channel home theater system the perfect companion to Samsung's 85-series DLP projection TVs.

The Samsung DS1100 is an AM/FM/DVD Receiver with 5.1 surround-sound speakers for home theater use. Designed to match Samsung's 85-Series DLP Projection TVs, the receiver can be wall-mounted or displayed in either a vertical or horizontal orientation.

Pedestal mounts are included for use in either configuration, and the receiver provides an HDMI output and multiple playback options, including: CD-MP3, WMA, DVD-R/RW, DVD Video, DVD Audio, JPEG, and CD-R/RW.

CES 2005 INNOVATIONS HONOREE



**Tivoli SIRIUS Home Table Radio**

MSRP: \$299.99

www.sirius.com

Tivoli SIRIUS Home Table Radio

Listen To SIRIUS In Style

The world's first table-top satellite radio, the Tivoli Home Table Radio is classically styled with a furniture-grade cherry wood cabinet and will be a great addition to any home. SIRIUS delivers more than 120 channels of the best commercial-free music, compelling talk shows, news, and information, and the most exciting sports programming to listeners across the country in digital-quality sound. SIRIUS offers 65 channels of 100% commercial-free music and features more than 55 channels of sports, news, talk, entertainment, traffic, and weather for a monthly subscription fee of only \$12.95. SIRIUS also broadcasts live play-by-play for NFL and NBA games and is the Official Satellite Radio partner of the NFL.

Features of the Tivoli SIRIUS Home Table Radio:

- SIRIUS/AM/FM in a cherry wood cabinet with 3-inch speaker

- Graphical LCD display
- Henry Kloss AM/FM Analog Tuner
- Multiple presets
- Parental control and channel lock-out
- Remote control
- Antenna included

Inputs available for:

- Add-on Tivoli speaker for stereo
- Add-on Tivoli subwoofer
- Add-on Tivoli CD player



**Denon Universal
DVD-5910**
MSRP: \$3,500
www.usa.denon.com



Denon Universal DVD-5910

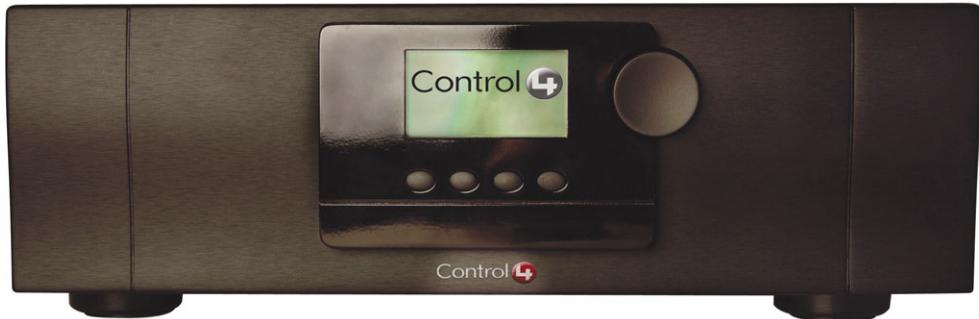
Denon's new flagship DVD player, the DVD-5910, is designed from the ground up with the most advanced technologies and features available, all to ensure that you'll enjoy the very best performance. Most notably, the DVD-5910 is the world's first product to contain the Realta/HQV chip from Silicon Optix, performing over 1 trillion video processing operations per second for the ultimate in image quality. Previous to the DVD-5910's introduction, the only way to harness this power was to purchase a \$60,000 scaler.

Post-processing of the progressive-scan video stream is handled by the new, critically acclaimed Precision Video Scaling™ technology from DVDO by Anchor Bay Technologies. This scaling technology offers resolution upconversion to HD resolutions, as well as very high-quality cross-conversion and downconversion functions. DVDO's scaling technology enables a perfect match of the DVD-5910's video output to today's high-resolution displays. Additionally, DVI-D (HDCP) and HDMI digital video outputs eliminate

the digital-to-analog conversions required by other types of video connections and provide for the finest picture quality for today's most advanced display devices. The DVD-5910 features a full selection of audio and video connections, including coaxial and optical digital outputs and multichannel analog audio outputs, as well as dual IEEE 1394 ports and Denon's proprietary Denon Link for pure audio transmission of high-resolution, multichannel audio.

With home entertainment systems getting more and more complex, Denon's flagship DVD-5910 universal DVD player is the ultimate source component, a single player that gives you the very best in both video and audio, no matter what disc format you choose. Because it's a universal DVD player, it plays every silver disc format available, including DVD-Audio and Super Audio Compact Discs (SACDs), as well as CDs, CD-R/RW, DVD-R/RW, MP3s, Video CDs, and Super Video CDs.

DENON



Control4® Media Controller
MSRP: \$1,495
[control4.com/products
/components/controllers.htm](http://control4.com/products/components/controllers.htm)

Control4® Media Controller

- With an 80GB hard drive and a price that is dramatically lower than any competitive product, the Control4® Media Controller marks the beginning of a new era for home audio and automation.
- Simultaneous digital audio streams make it easy for everyone to enjoy their favorite music at the same time, from anywhere in the house.
- Utilizing standards-based IP wired and/or wireless technology, the Control4® Media Controller is a complete, easy-to-use management system that delivers total music entertainment, storage, and control for the whole house.
- Users can store their entire music collection for on-demand playback to multiple zones simultaneously and select stored media via an on-screen (TV) interface, or

the bidirectional handheld Control4® System Remote (included), Keypad, or Touch Screen.

- Music can be organized by artist, song title, track, genre, or playlist.
- In addition to being a digital music manager, the Control4® Media Controller has embedded software that allows users to control other Control4® or third-party devices throughout the home, including home theater, lighting, temperature, and security.
- The Media Controller has the ability to make any home fit any lifestyle. No need to buy a separate control component. Now, more people can truly enjoy the benefits of a fully automated home.

Control4

music & movies

music

BY BLAINE FLAMIG

Julia Fordham, "That's Live": Imagine a female version of Sting, and you have a good idea of what Julia Fordham is all about. Smart, polished, and packing an amazing voice, Fordham rarely disappoints.

Twinemen, "Sideshow": Twinemen is two parts ex-Morphine members Dana Colley and Billy Conway and one part singer Laurie Sargent. Still relatively unknown nationally, we've been big fans of the eccentric quirkiness that is the Twinemen for years. Prepare yourself for some odd beauty.

Lincoln Center Jazz Orchestra, "A Love Supreme": Coltrane's original 1964 recording is still one of the most influential and powerful records, jazz or otherwise, ever. Under Wynton Marsalis' direction, this 2004 recording from the LCJO pays tribute. A can't miss.

recently released

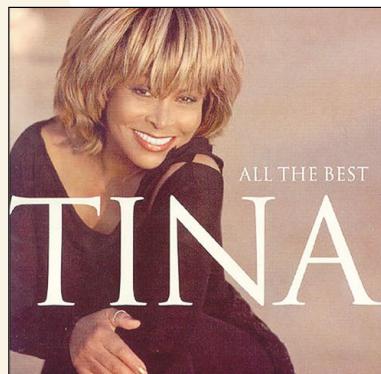


"Knuckle Down"

Ani DiFranco

\$16 • Available: Jan. 25

Feminist. Punk. Poet. This and more describe the incomparable Ani DiFranco. "Knuckle Down" follows 2004's "Educated Guess," which DiFranco wrote, played, and recorded all the tracks for. Here she hooks up with a score of players, including songwriter Joe Henry, who helps on production chores.



"All The Best"

Tina Turner

\$25 • Available: Feb. 1

Few female singers are as respected as Turner. After breaking free from abusive husband Ike, she enjoyed a career renaissance in the '80s and '90s with a scad of Top 10 hits. These 33 remastered songs include the No. 1 "What's Love Got To Do With It?" and "Proud Mary."

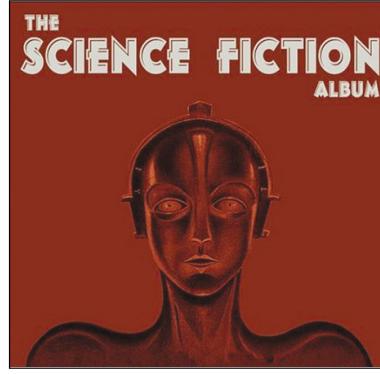


"This Woman"

LeAnn Rimes

\$19 • Available: Jan. 25

As the title suggests, country's little darling is all grown up. Just 13 when the Patsy Cline-like "Blue" catapulted Rimes into Nashville's stratosphere, Rimes is 22 now and looking for a strong follow up to 2002's disappointing "Twisted Angel." We've always known she has the chops, but do these songs have the goods?



"The Science Fiction Album"

Various Artists - Soundtracks - Anthologies

Various Artists

\$43 • Available: Feb. 8

We couldn't pass this one by. This is a tech mag, after all. From "Battlestar Galactica" to "Dune" to "ET" to the animated classic "Heavy Metal," this four-CD set of 71 tunes has seemingly something for every closet geek.



"Eternal Sunshine Of The Spotless Mind: Collector's Edition"

\$27.99 • Available: Jan. 4

"Eternal Sunshine," a film that addresses love, loss, and one man's maddening attempt to hold onto the fading memories of his beloved, is so addictively intricate, you'll feel as if you're willingly sinking into a hazy sea of delicious confusion. That's typical of a Charlie Kaufman-written flick ("Being John Malkovich" and "Adaptation"), but this is his most personal, romantic work yet. Jim Carrey is understatedly brilliant. Kate Winslet makes the screen glow. And director Michel Gondry's illusionary landscapes are both eerily familiar and positively alien. This film is one of 2004's best and well-deserving of this special two-disc treatment with Dolby Digital and DTS 5.1 audio tracks.

"Troy"

\$29.95 • Available: Jan. 4

Director Wolfgang Petersen's version borrows from both Homer's "The Iliad" and "The Odyssey." The translation to the big screen is standard Hollywood flair with a recognizable cast (Brad Pitt as Achilles, Brian Cox as Agamemnon, Eric Bana as Hector, Orlando Bloom as Paris, Peter O'Toole as Priam). The glinting swordplay and bronze muscles don't really touch on the mythological aspects that are featured so prominently in Homer's writings. Overall, "Troy" is a pretty film with plenty of eye candy, but is not very intellectually stimulating.

"Monk: Season Two"

\$59.99 • Available: Jan. 11

Not since "Columbo" has there been such an enigmatic detective on television. Tony Shalhoub plays Adrian Monk to perfection. We take that back—he doesn't play a character; he is the character. Monk was a brilliant detective who lost it after the death of his wife. Though no longer part of the force, he continues to help the police in an unofficial capacity while also battling his own quirky fears. Each of these 16 hour-long episodes is original, funny, and intriguing; Monk's phobias are humorous and touching at the same time. This is one of the very best detective shows to hit television in recent years and comes highly recommended.



"The Manchurian Candidate"

\$29.99 • Available: Dec. 21

Remakes can be very good ("Ocean's Eleven") or very bad ("Psycho"), so it was refreshing to watch how Director Jonathan Demme updated this 1962 Frank Sinatra vehicle to the present day (Denzel Washington steps in for Sinatra). This is not an identical remake, and the film should be allowed to stand on its own (considerable) merit. Anamorphic widescreen and Dolby Digital 5.1 are available, but the extras are even lighter than "The Village." This is very likely to be revisited in Special Edition form in 2005. You'll definitely want to go with this one if you're trying to decide between "The Manchurian Candidate" and "The Forgotten" below.

recently released



"The Forgotten"

\$28.95 • Available: Jan. 18

Let's get things in perspective: This is not the "biggest jaw dropper since 'The Sixth Sense.'" What you do have is the always superb Julianne Moore playing a grieving mother with strong supporting cast, including the likes of Gary Sinise and Anthony Edwards. The movie asks how you would feel if you woke up one day to find that your offspring never existed. The film gets off to a strong start but falls apart by the end. If we didn't know better, we'd swear this was a left-over script from a late-season episode of the now defunct "X-Files" in which Moore is a retired Dana Scully. Go into it with low expectations, and you'll come out with a far-fetched surprise (if you haven't already seen the film's trailer).

"Napoleon Dynamite": This film is painfully funny at the expense of its uber-nerd main character. It's quirky and weird, but intentionally so. If you liked "Rushmore," you'll almost certainly enjoy the life of Mr. Dynamite.

"Garden State": Zach Braff (Dr. John 'J.D.' Dorian from the TV series "Scrubs") both wrote and starred in his feature film debut. What could have been your typical love story ends up being a charming, quiet film that touches your heart.

"The Bourne Supremacy": This follow-up to 2002's "The Bourne Identity," keeps things moving along at a full clip. Matt Damon once more carries the film with his mature, intense portrayal of a hunted ex-spy fighting to remember his past.

games

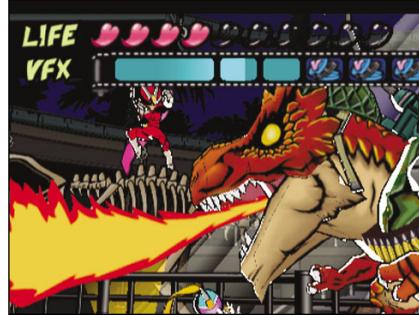


for you and the people in your life

PlayStation 2



Multiplatform



Xenosaga: Episode II

Xenosaga: Episode II is a role-playing game with both fantasy and science-fiction elements that puts players in the role of a heroic band of adventurers struggling to understand an ancient relic of immense power. Real-time exploration, turn-based combat, and lots of computer graphics-powered movie scenes are on the menu in this sequel, which features more realistic characters and environments than its anime-inspired predecessor.



ESRB Rating: Pending (RP)
\$49.99
Namco
www.xenosaga.com

Viewtiful Joe 2

VJ2 is a side-scrolling action game for PlayStation 2 and GameCube that pits Joe and Sylvia (players can swap between characters at the touch of a button during play) against a myriad of B-movie bad guys. The game sports cel-shaded graphics and vivid colors that give it a bit of a comic-book feel, and the campy one-liners and movie clichés are good for more than a few laughs.



ESRB Rating: (T)een
\$39.95
Capcom
www.capcom.com/vj2

Midnight Club 3: DUB Edition

Rockstar Games' street racing series teams up with *DUB Magazine* for its third installment, and the game clearly reflects the magazine's influence. *Midnight Club* is all about getting, customizing, and racing fast, exotic cars at breakneck speed through city streets. Players will start out with an entry-level car and race to earn street cred and more cars. The game's ESRB rating is currently pending, but past iterations have been rated Teen (13+).



ESRB Rating: pending (RP)
\$49.99
Rockstar Games
www.rockstargames.com

Nintendo
GameCube

Fire Emblem

Nintendo's strategy role-playing game series hits the GameCube this winter after a successful outing on the Game Boy Advance in late 2003. Fire Emblem puts players in command of groups of fantasy-themed characters with various fighting styles and abilities who take the field against the forces of a nearby kingdom. In battle, opposing armies take turns moving across the game's 3D maps and staging coordinated attacks designed to capitalize on each unit's strengths and weaknesses.



ESRB Rating: Pending (RP)
\$49.99
Nintendo
www.nintendo.com

X b o x



Jade Empire

Jade Empire is an Xbox exclusive kung-fu RPG from the developers (BioWare) behind LucasArts' Knights Of The Old Republic. The setting is mythical China with demons and plenty other supernatural things going on. Players master the art of magic and kung-fu as the plot slowly unravels and their on-screen characters develop. Jade Empire should be hitting the ground feet first as you read this, so practice your best crouching tiger, hidden dragon on the way to your local retailer.



ESRB: pending (RP)
\$49.99
Microsoft Game Studios
jade.bioware.com



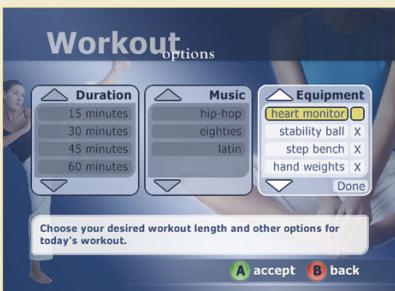
Star Wars: Republic Commando

The latest squad-based FPS from LucasArts should be on store shelves March 1, just 18 days prior to the theatrical release of "Star Wars: Episode III—Revenge Of The Sith." Players lead a squad of commandos into various combat scenarios based on places and events from the Star Wars universe. Gameplay borrows liberally from the best in the genre but adds enough original elements to set itself apart from the competition.



ESRB: (T)een
\$49.99
LucasArts
www.swcommando.com

X b o x



yourself fitness

Have you ever thought about going to yoga class but discovered your schedule just didn't allow for it? Family support and career growth rightly take a lot of time, and that's why we love this innovative product. You get your own personal fitness trainer, Maya, to work out with you whenever you want. She's a fit, peppy, chatty workout leader who will monitor and track your workout and provide diet advice, and she is ready to go when you are.

This is not really a game, but a fully interactive, personal workout training tool. Maya gauges your fitness level and motivations and asks what equipment you have. After that, you can focus on yoga, Pilates, and other fitness regimens suited to what you wish to achieve. All you need is space to move around, an Xbox, and a TV.



ESRB: (E)everyone
\$34.99
responDESIGN
www.yourselffitness.com



& gifts

on the lighter side of technology



Voltaic Backpack

An obvious must-have for college students, this stroke of genius is just as essential for any power user that carries a backpack. The Voltaic Backpack (\$229; www.voltaicsystems.com) is not only comfortable carry gear, it's also a recharging station for your phone, PDA, or music player. Waterproof solar panels gather the sun's rays as you walk and keep the Backpack's hidden batteries topped up. The pack can charge devices requiring 3.7 to 7.2V, depending on the battery pack you choose. It also comes with adapters for common cell phones and other mobile gizmos, such as those iPods we've all heard of. You can even sneak a charge from your car battery in a pinch.

BTO PlusDeck 2



No, this gadget isn't from Bachman-Turner Overdrive, although it would be fitting considering that band's presence in so many cassette tape collections. The PlusDeck 2 (\$149.99; plusdeck.com/englishsite/index.asp) is either a retro drive bay addition for analog-loving holdouts, or it's a convenient way for you to digitize all those old Paula Abdul and DeBarge classics in your closet. Yes, it's an audiocassette player/recorder for your PC. And yes, you can rip surprisingly good MP3s and other music files from tape, as long as it hasn't deteriorated much over the years. If your musical memory lane began with President Carter and ended with Bush the First, hook up with a PlusDeck 2.



Source: Other World Computing.



■ **Newer Technology NuPower iBook Batteries**

When we hear about replacement batteries for Apple products, we can't help but think of the iPod, which has had a makeover in this area since its first generation. Newer Technology and partner Other World Computing sell iPod cell replacements, but here, we're turning the spotlight on their NuPower Li-Ion (lithium-ion) rechargeable battery line for iBook G3 Clamshell and Dual USB notebooks. NewerTech claims that the new NuPowers (\$119.99 to \$139.99; www.newertech.com/batteries) offer substantially longer battery life than Apple's originals. That's like getting an upgrade along with your replacement part.

■ **Keyspan Express Remote**

Bonus! This remote lets you control multimedia apps on your PC or Mac, such as music and video players, from across a room. But the real point of interest is that it also works with Apple's AirPort Express base station. As you stream music wirelessly from your Mac to your stereo, you'll now be able to direct the action without getting up from whatever passionately artistic activity you're engaged in. On the downside, the Express Remote (\$59.99; www.keyspan.com) uses infrared instead of RF (radio frequency) signals, so you'll need a clear line of sight between it and its target. On this point, we wish Keyspan had thought differently.

■ **Sharper Image Sound Soothie Fifty**

It's a soothing noise generator! It's a powered speaker base for your music player! It costs almost as much as an iPod Mini! Upscale doodad clearing house Sharper Image offers several neat stereo docks for those times when your mobile music device isn't so mobile. This one, however, also plays 50 odd background sounds to help you sleep, relax, or study. The Sound Soother Fifty (\$199.95; www.sharperimage.com; model number SI726SIL) can play old standards such as Thunderstorm, Desert Wind, and Surf's Up, but it can also do Clothes Dryer, Jet, and Steam Train for the more unique among us.



Auralex Acoustics SubDude

If your subwoofer's "boom, boom" is overlaid with something else's "buzz, buzz," you need to isolate your speakers. Subdue those bad vibrations with the SubDude (\$59; www.auralexelite.com). Because the SubDude platform absorbs sound waves that would normally pass into the floor and become distorted, Auralex Acoustics claims that it can actually make your speakers' bass sound cleaner and clearer. The SubDude is wide enough for most speakers and subwoofers and is less than 3 inches tall. It's also probably the only gift for your audiophile better half that's within your Valentine's Day budget.



Adesso FOLD-2000

Ranking high on our personal list of True Facts We Don't Dwell Upon is the report that keyboards, phones, and computer mice teem with germs and bacteria. After all, who cleans these? Like, ever? One solution is a water-resistant keyboard such as the Adesso FOLD-2000 (\$29.99; www.adesso.com). Adesso says that you can wash it or dip it in disinfectant (which we suggest doing after your roommate's creepy brother uses your PC without permission). And you can even roll up or fold the FOLD-2000, should you ever want to. Let it droop off the side of your desk—it's the perfect way to show your artistic side.



Delkin eFilm Archival Gold 300-Year CD-R

Three hundred years. Three *hundred* years. That's how long Delkin says that these archival CD-Rs (\$17.99 for a 10-pack with wallet; www.delkin.com) will last. Besides a long-lasting recording dye, each Archival Gold CD-R has a 24-karat gold reflective layer, which won't corrode like the aluminum layer found in most CDs. This is not media for storing 600 shots of your Bichon Frise, no matter how cute she looks in that little ballerina outfit. These discs are for items of important historical value, such as the first photograph of little Benny after he was born or the picture that captured your youngest daughter receiving her high school diploma.



Lexar USB FlashCard

We've only found a few USB flash memory drives that we would consider too bulky, leaving aside the Sushi Disks we covered last issue. Here's a new model that's no bigger than the USB port it plugs into, thickness- and width-wise. Lexar plans to introduce versions of the USB FlashCard (pricing TBA; www.lexar.com) in 2005 that have 16 to 64MB capacities with 1.5Mbps speeds (the foolishly named Full-Speed USB 2.0) and 64MB to 1GB sizes that can transfer data much faster (Hi-Speed USB 2.0). The tech gadget world is rapidly closing in on the Holy Grail of personal storage: devices so small, you'll lose one every time you sneeze.

Retro

the development of the digital camera

1975



1975 Kodak Digital Camera Prototype

The precursor to the modern digital camera is this prototype; Kodak built it and gave it a trial run in 1975. It created monochrome images comprising 10,000 **pixels** (100 x 100 pixels, or picture elements; these are single units that make up a digital image). In comparison, a modern 1MP (megapixel) digital camera creates color images comprising 1 million pixels.

1994

1994 Apple QuickTake 100 & Kodak DC40

Kodak joined with Apple to develop the first consumer-oriented digital camera that could connect to a home computer: the Apple QuickTake 100, which was introduced in February 1994 at the MacWorld Expo in Tokyo. Kodak soon introduced an improved version of its own, the DC40.



1988

1988 Sony MVC-C1 Hi-Band Mavica & Fuji DS-1P

In 1981, Sony introduced the first professional-grade electronic still video camera, which produced analog pictures from video freeze frames. A version for consumers, the MVC-C1 Hi-Band Mavica, followed in 1988. The same year, Fuji unveiled (but never sold in the United States) the first fully digital camera, the DS-1P, which recorded images to a 2MB internal memory card.



1991

1991 Kodak DCS100

In 1991, Kodak introduced the DCS100 and aimed it at photo-journalists. The 1.3MP digital image sensor attached directly to the Nikon F3 camera body, so the camera itself retained all of its familiar functions.



SCOPE

1995

1995 Casio QV-10

In 1995, Casio launched a new digital camera design, the QV-10, which was the first digital camera model with an LCD on the back. The resolution of the QV-10's images was notably low, however: 320 x 240 pixels, or half the resolution of the Apple QuickTake 100's images.



1997

1997 Kodak DC120

Kodak introduced the DC120 Zoom, the first consumer-oriented 1MP digital camera priced below \$1,000, in 1997. It was a binocular-style point-and-shoot model and featured a 3X autofocus zoom lens, as well as an optical viewfinder and a color LCD.



2004

2004 Olympus EVOLT E-300

Last year, Olympus announced "the first 100 percent 'digital-from-the-ground-up'" consumer SLR camera—described this way because all of its interchangeable lenses were specifically designed for a digital camera. The 8MP digital SLR also carries a unique price in its megapixel category: less than \$1,000.



2003

2003 Canon EOS Digital Rebel

The first digital SLR (single-lens reflex) camera priced below \$1,000 is the Canon EOS Digital Rebel, a 6.3MP camera introduced in 2003. This price level previously applied only to point-and-shoot digital cameras.



2001

2001 Fuji FinePix 6800 Zoom

Fuji's FinePix 6800 Zoom, a 3.3MP camera introduced in 2001 and designed by F.A. Porsche, was the first to use a USB docking station to transfer digital photos to a computer. The docking station also enabled the camera to act as a Web cam for videoconferencing.



The Advancements Continue . . .

The evolution of digital camera technology continues at full force, though it remains unlikely that film cameras will be completely replaced by digital anytime soon. As digital technology continues to change and grow in popularity, consumers can look forward to digital cameras that are faster and less expensive and take even higher-quality pictures than today's models can produce. **CE**

BY ROBERT E. CALEM

Glamorize, Digitize, Accessorize

We just can't get enough tech toys. These 10 digital products are not only useful, they look good, too.

BMW 745i - high-tech automobile • www.bmwusa.com

BMW has packed all sorts of electronic goodies into its 700 series, including complete surround-sound audio and a cruise control that monitors how close you are to other vehicles.



Mintika - notebook case • www.mintika.com

You can keep your notebook PC safe and look stylish at the same time with this eye-catching bag from Mintika.



Apple iPod Photo - music player & photo storage device • www.apple.com/ipodphoto
Apple's iPod Photo does for snapshots what the original iPod did for music. Of course, this newest iPod version plays music, too.



NHJ VTV-101 - television wrist-watch • www.njhapan.com
Your favorite show is just a flick of the wrist away with NHJ Limited's wristwatch TV.



Adidas 1 - digital shoes •

www.adidas.com

We hate sore feet. A processor inside Adidas' new "1" running shoes monitors your gait and adjusts the cushioning level as you go.



Oakley Thump - digital sunglasses • www.oakley.com
Oakley's Thump is a dual-purpose pair of digital specs that will keep the sun out of your eyes and the music in your ears.



Sony Aibo ERS-7M2 - Robotic Pet • www.us.aibo.com
Here's a faithful companion that won't break your apartment's "no pets" rule. Sony's robotic dog won't mess on your floors, either.



Luminex - fiber-optic clothing • www.luminex.it
For the ultimate in shimmer, try out a top made of Luminex. Fiber optics are woven into this wild new fabric from Italy.



Philips - 256MB Audio Key Ring MP3 Player • www.store.philips.com
Keep track of your keys in style with this mini-MP3 player from Philips.



Motorola Razr V3 - cell phone • www.motorola.com
Tired of bulky phones? Motorola's Razr V3 squeezes a huge screen into a case so thin it's sinfully. Oh, and it includes a camera, too.



Great theater deserves a great setting.

The beauty and warmth of real maple or cherry come to life in the distinctive style of new Woodbrook furniture from Sanus. The fine lines provide a beautifully functional setting for your audio and video components, with convection cooling engineered into the cabinet design. Choose from a variety of door and drawer options. See Woodbrook furniture and more at www.sanus.com. Come and browse through the woods.

SANUS | SYSTEMS

THE UNION OF FORM AND FUNCTION

800.359.5520 www.sanus.com

PHILIPS



Experience television in a whole new light.

Turn on the new flat TV from Philips with Ambient Light Technology, and watch what happens. Your eyes see more than what's on the screen, as color and light expand beyond the frame and onto the walls. You bask in the warm glow of the background lighting that automatically changes color and intensity to reduce eye strain and provide a more relaxed viewing environment. And with Pixel Plus™ 2, you experience the detail and vivid colors that are as close to real life as you can get. For a deeper view of the entire Philips Flat TV™ line, featuring Ambient Light Technology, and to find the retailer nearest you, check out www.flattv.philips.com. It's unlike anything you've ever seen before.



© 2004 Philips Electronics North America Corporation



Experience Ambient Light televisions in LCD or Plasma.
LCD: 32"-42" Plasma: 42", 50"